

# THE YEAR BOOK

## 1979



INDIAN NATIONAL SCIENCE ACADEMY  
NEW DELHI



THE YEAR BOOK  
OF THE  
INDIAN NATIONAL SCIENCE ACADEMY  
*(Formerly, National Institute of Sciences of India)*

1979



INDIAN NATIONAL SCIENCE ACADEMY  
NEW DELHI

## **Postal Address**

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Bahadur Shah Zafar Marg  
New Delhi 110 002*

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**Price : Rs. 25.00**

Published by S. K. Dasgupta, Executive Secretary, Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi 110 002, and Printed by him at the Aruna Printing Press, B-78 Phase II, Industrial Area, Naraina, New Delhi 110 028.

R. No. 16424/68

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## THE COUNCIL 1979

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PROFESSOR R. P. BAMBAH, *Vice-President*  
PROFESSOR M. S. RANDHAWA, *Vice-President*  
DR. B. RAMACHANDRA RAO, *Treasurer*  
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DR. M. G. DEO, *Secretary*  
DR. A. P. MITRA, *Secretary*  
PROFESSOR H. Y. MOHAN RAM, *Editor of Publications*  
PROFESSOR S. K. TREHAN, *Editor of Publications*  
DR. F. AHMAD  
PROFESSOR T. R. ANANTHARAMAN  
DR. D. P. ANTIA  
DR. S. C. BHATTACHARYYA  
DR. R. R. DANIEL  
PROFESSOR J. GANGULY  
DR. H. K. JAIN  
DR. J. S. KANWAR  
DR. C. R. KRISHNAMURTI  
PROFESSOR R. C. MEHROTRA  
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DR. Y. NAYUDAMMA  
DR. A. S. PAINTAL  
PROFESSOR V. PURI  
DR. SUPRIYA ROY  
PROFESSOR G. P. SHARMA  
DR. R. RAMANNA (*Past President, Ex-officio*)

### Representatives of the Co-operating Academies

#### *Asiatic Society*

PROFESSOR B. C. KUNDU

#### *Indian Academy of Sciences*

---

#### *The National Academy of Sciences, India*

PROFESSOR H. L. NIGAM

#### *The Indian Science Congress Association*

PROFESSOR A. K. SAHA

#### *The Government Representative*

DR. M. G. K. MENON

## SENIOR OFFICE STAFF

DR. S. K. DAS GUPTA, *Executive Secretary*  
SHRI S. RAJAN, *Assistant Executive Secretary*  
SHRI B. C. TEWARI, *Assistant Secretary*  
SHRI S. K. SAHNI, *Project Coordinator*  
DR. A. K. BAG, *Project Coordinator (History of Sciences)*  
DR. M. DHARA, *Associate Editor*  
SHRI B. D. UKHUL, *Librarian*  
SHRI C. P. AGARWAL, *Accounts Officer*  
DR. (MRS.) M. RAYCHAUDHURY, *Assistant Project Coordinator*  
SHRI A. K. TAGORE, *Assistant Project Coordinator*  
MRS. S. MITRA, *Assistant Editor (History of Sciences)*  
SHRI R. D. BHALLA, *Assistant Editor*  
SHRI JANAK RAJ, *Assistant Editor*  
SHRI J. SAKETHARAMAN, *Assistant Editor*  
DR. (MRS.) M. CHATTERJEE, *Sub-Editor*  
SHRI S. K. SANDHAR, *Office-Superintendent*  
SHRI D. K. KAUSHIK, *Assistant Librarian*  
SHRI J. L. VERMA, *Accountant*  
SHRI S. K. ROY, *Accountant*

## CALENDAR 1979

1 January Monday	<i>Annual Subscription due</i> Statutory Meeting of the Council	<i>Hyderabad</i>
2 January Tuesday	Anniversary General Meeting	<i>Hyderabad</i>
20 January Saturday	Meeting of the Publica- tion Advisory Board Meeting of the Library Committee Meeting of the Building Committee	
27 January Saturday	Meeting of the Commi- ttee for Popularization of Science Meeting of the Basic Science Committee	
3 February Saturday	Meeting of the National Commission for the Compilation of History of Sciences in India	
15 February Thursday	Meeting of Inter - Academy Exchange Committee	

17 February Saturday	Meeting of the Finance Committee Meeting of the Establishment Committee	
3 March Saturday	Non-Statutory Meeting of the Council Ordinary General Meet- ing	<i>Delhi</i>
14 March Wednesday	Meeting of the Indian side of Indo-Soviet Joint Committee Meeting of the Panels of experts	
21 March Wednesday	Meeting of National Committee of ICSU	
23 April Monday	Meeting of the Sectional Committees	<i>Delhi</i>
24 April Tuesday	Meeting of the Sectional Committees ( <i>continued</i> )	<i>Delhi</i>
25 April Wednesday	Meeting of Symposia and Summer School Committee	
8 May Tuesday	Meeting of the Basic Sciences Committee	
10 May Thursday	Statutory Meeting of the Council Ordinary General Meeting	<i>Shillong</i>

11 May Friday	Statutory Meeting of the Council ( <i>continued</i> )
15 May Tuesday	<i>Last date for receipt of suggestions for award of Academy Medals and Lectures due for 1981</i>
18 May Friday	Indian National Committee for ICSU
26 May Saturday	Meeting of the Finance Committee
1 July Sunday	<i>Last date for receipt of suggestions for filling up vacancies in the Council and Sectional Committees</i>
14 July Saturday	Meeting of the Publication Advisory Board Meeting of the Library Committee Meeting of the Building Committee
9 August Thursday	Statutory Meeting of the Council Ordinary General Meeting
10 August Friday	Statutory Meeting of the Council ( <i>continued</i> )

3 September	Meeting of the Committee for Popularization of Science	
Monday	Meeting of the Grants Committee	
15 September	Meeting of the Finance Committee	
Saturday	Meeting of the Establishment Committee	
3 October	Meeting of the National Commission for the Compilation of History of Sciences in India	
Wednesday	Statutory Meeting of the Council	<i>Delhi</i>
6 October	Annual General Meeting	<i>Delhi</i>
Saturday	Meeting of the Basic Science Committee	
25 October	Meeting of the Symposia & Summer Schools Committee	
Wednesday		
1 December	Non-Statutory Meeting of the Council	<i>Delhi</i>
Saturday	Ordinary General Meeting ( <i>if necessary</i> )	<i>Delhi</i>
15 December	<i>Last date for receipt of Reports of Medals/ Lectures from Advisory Boards</i>	
Saturday		

*Note :* Dates given above are tentative excepting those for the meetings of the Council, General Body, Sectional Committees and the last dates for receipt of suggestions, etc. The exact dates and timings of the other meetings will be intimated to concerned members well in advance.

## P A S T   P R E S I D E N T S

SIR L. L. FERMOR	1935 - 36
PROFESSOR M. N. SAHA	1937 - 38
Lt. COL. R. N. CHOPRA	1939 - 40
DR BAINI PRASAD	1941 - 42
DR J. C. GHOSH	1943 - 44
DR D. N. WADIA	1945 - 46
DR S. S. BHATNAGAR	1947 - 48
PROFESSOR S. N. BOSE	1949 - 50
DR S. L. HORA	1951 - 52
PROFESSOR K. S. KRISHNAN	1953 - 54
DR A. C. UKIL	1955 - 56
PROFESSOR P. C. MAHALANOBIS	1957 - 58
PROFESSOR S. K. MITRA	1959 - 60
DR A. N. KHOSLA	1961 - 62
DR H. J. BHABHA	1963 - 64
PROFESSOR V. R. KHANOLKAR	1965 - 66
PROFESSOR T. R. SESHA DRI	1967 - 68
DR ATMA RAM	1969 - 70
PROFESSOR B. R. SESHA CHAR	1971 - 72
PROFESSOR D. S. KOTHARI	1973 - 74
DR B. P. PAL	1975 - 76
DR R. RAMANNA	1977 - 78

# RECENT PAST OFFICERS OF THE INDIAN NATIONAL SCIENCE ACADEMY

*Presidents*

PROFESSOR V. R. KHANOLKAR  
 PROFESSOR T. R. SESHADRI  
 DR ATMA RAM  
 PROFESSOR B. R. SESHACHAR  
 DR D. S. KOTHARI  
 DR B. P. PAL  
 DR R. RAMANNA

*Tenure of Office*

1 Jan. 1965 - 31 Dec. 1966  
 1 Jan. 1967 - 31 Dec. 1968  
 1 Jan. 1969 - 31 Dec. 1970  
 1 Jan. 1971 - 31 Dec. 1972  
 1 Jan. 1973 - 31 Dec. 1974  
 1 Jan. 1975 - 31 Dec. 1976  
 1 Jan. 1977 - 31 Dec. 1978

*Vice-Presidents*

DR ATMA RAM  
 DR S. BHAGAVANTAM  
 DR P. K. KICHLU  
 DR J. C. RAY  
 DR R. K. ASUNDI  
 DR K. RAMIAH  
 DR B. D. NAG CHAUDHURI  
 PROFESSOR T. R. SESHADRI  
 DR C. R. RAO  
 DR B. P. PAL  
 PROFESSOR M. R. N. PRASAD  
 DR K. VENKATARAMAN  
 DR R. C. MEHROTRA  
 PROFESSOR A. K. SHARMA

J 1an. 1965 - 31 Dec. 1966  
 1 Jan. 1965 - 31 Dec. 1966  
 1 Jan. 1967 - 31 Dec. 1968  
 1 Jan. 1967 - 31 Dec. 1968  
 1 Jan. 1969 - 31 Dec. 1970  
 1 Jan. 1969 - 31 Dec. 1970  
 1 Jan. 1971 - 31 Dec. 1972  
 1 Jan. 1971 - 31 Dec. 1972  
 1 Jan. 1973 - 31 Dec. 1974  
 1 Jan. 1973 - 31 Dec. 1974  
 1 Jan. 1975 - 31 Dec. 1976  
 1 Jan. 1975 - 31 Dec. 1976  
 1 Jan. 1977 - 31 Dec. 1978  
 1 Jan. 1977 - 31 Dec. 1978

*Treasurers*

PROFESSOR R. C. MAJUMDAR  
 PROFESSOR S. RANGASWAMI  
 DR A. R. VERMA

1 Jan. 1965 - 31 Dec. 1968  
 1 Jan. 1969 - 31 Dec. 1972  
 1 Jan. 1973 - 31 Dec. 1976

*Secretaries*

PROFESSOR F. C. AULUCK  
 DR N. K. PANIKKAR  
 DR B. D. NAG CHAUDHURI  
 DR M. S. SWAMINATHAN  
 DR V. G. BHIDE  
 DR A. B. JOSHI  
 PROFESSOR A. N. MITRA

1 Jan. 1965 - 31 Dec. 1968  
 1 Jan. 1965 - 31 Dec. 1968  
 1 Jan. 1969 - 31 Dec. 1970  
 1 Jan. 1969 - 31 Dec. 1972  
 1 Jan. 1971 - 31 Dec. 1974  
 1 Jan. 1973 - 31 Dec. 1976  
 1 Jan. 1975 - 31 Dec. 1978

*Foreign Secretaries*

PROFESSOR B. R. SESHACHAR  
DR B. MUKERJI  
PROFESSOR A. G. JHINGRAN  
DR B. D. NAG CHAUDHURI

1 Jan. 1965 - 31 Dec. 1966  
1 Jan. 1967 - 31 Dec. 1968  
1 Jan. 1969 - 31 Dec. 1972  
1 Jan. 1973 - 31 Dec. 1976

*Editors of Publications*

DR B. P. PAL  
PROFESSOR B. R. SESHACHAR  
PROFESSOR F. C. AULUCK  
PROFESSOR M. R. N. PRASAD  
PROFESSOR L. S. KOTHARI  
PROFESSOR K. N. SAXENA

19 May 1966 - 31 Dec. 1966  
1 Jan. 1967 - 31 Dec. 1970  
1 Jan. 1971 - 31 Dec. 1974  
1 Jan. 1971 - 31 Dec. 1974  
1 Jan. 1975 - 31 Dec. 1978  
1 Jan. 1975 - 31 Dec. 1978



## INTRODUCTION

### **History**

\*Established in 1935 as the National Institute of Sciences of India.

\*Recognized as the premier society representing all branches of science in the country in October 1945.

\*Headquarters shifted from Calcutta to New Delhi in May 1946.

\*Designated as the adhering organization in India for the International Council of Scientific Unions, and of the 15 International Scientific Unions affiliated to International Council of Scientific Unions on behalf of the Government of India. In this capacity, the Academy chooses Indian delegations to conferences and symposia organised by these International Unions.

\*Name of the Institute changed to the Indian National Science Academy in February 1970.

### **Objects**

To promote the development of natural knowledge in India including its practical application to problems of national welfare;

To effect co-ordination between scientific academies, societies, institutions and Government scientific departments and services;

To act as a body of scientists of eminence for the promotion and safeguarding of the interests of scientists in India and to represent internationally the scientific work of India;

To act through properly constituted National Committees in which other learned academies and societies will be associated, as the National Research Council of India, for undertaking such scientific work of national and international importance as the Council may be called upon to perform by the public and by the Government;

To publish such proceedings, journals, memoirs and other publications as may be found desirable;

To promote and maintain liaison between Science and Letters;

To do and perform all other acts, matters and things that may assist in, conduce to, or be necessary for the fulfilment of the above mentioned aims and objects of the Academy.

### **Science and the Nation**

The Science Academy has been organizing a number of popular lectures and technical lectures in various parts of India from time to time.

The Science Academy is now assuming a more dynamic role than hitherto. It is trying to provoke thinking, discussions and debates on many issues which concern science and scientists.

Science and technology are assuming increasing importance in our national life. The Academy is trying to enable the scientists to play their proper role in the planning, development, propagation and utilisation of science in the resuscitation of our struggling economy and the emancipation of our people.

## **PUBLIC AND OTHER RESPONSIBILITIES**

### **1. Government Grant-in-Aid for Compilation of 'History of Sciences in India'**

The Government of India accepted a scheme submitted by the Indian National Science Academy during the closing period of the Second Five-Year Plan and sanctioned funds for work on the Compilation of the History of Sciences in India. The work in this connection was in progress during the Third- and Fourth-Five-Year Plan and is continuing during the current Five-Year Plan. At first, the funds were disbursed on the advice of the History of Science Board, appointed by the Academy. In 1965, as a result of discussion, and on the advice of the then Minister for Education, the National Commission for the Compilation of History of Sciences in India has been constituted for a better working of the Scheme. This Commission has since then taken up the work of compilation from the History of Science Board.

### **2. Government Grant-in-Aid for International Scientific Unions and Scientific Congresses**

In 1966, the Indian National Science Academy approached the Government of India with a request that a grant-in-aid be made to the INSA to enable it to adhere to the International Council of Scientific Unions and the International Scientific Unions which are members of the Council. This was agreed to in January 1968. The Government has subsequently declared the Indian National Science Academy, acting through the Chairmen of the National Constituent Units, as the adhering Body for the International Council of Scientific Unions. The grant is administered by the Council of the INSA, and is specially intended to (a) meet the expenses of delegates attending the

meeting of international scientific organizations, and (b) generally, further the cause of international science.

### **3. Government Grant-in-Aid for Organization of Summer Schools**

The Ministry of Education has been organizing each year summer schools in different disciplines of science with a view to enabling selected research workers in the disciplines to get together, and to exchange their views and experience on problems tackled by them or under their study. The research workers for participation in the summer schools are drawn from the Universities/Scientific Research Institutions. In the year 1968 the Ministry of Education transferred this responsibility for organizing summer schools to the Indian National Science Academy. The grant-in-aid received for the purpose is administered by the Council of the INSA.

### **4. Government Grant-in-Aid for the Indo-USSR Scientific Collaboration**

As a result of discussion between the Government of India and the Soviet Academy of Sciences regarding scientific collaboration, the Government of India decided to set up a joint committee of scientists of both countries to formulate concrete projects and programmes in specific areas/subjects of scientific research for co-operation between India and the USSR.

As a result of this decision, the Indian side of the Indo-Soviet Joint Committee recommended the setting up of four panels of experts for preparing projects relating to (a) Mathematics, Physics, Astrophysics and Nuclear Physics; (b) Earth Sciences including Oceanography; (c) Social Sciences, and (d) Chemistry and Biological Sciences.

The Government of India decided to associate the Indian National Science Academy with these projects and, as a consequence thereof, placed a block grant at the disposal of the Academy for the purpose.

## **5. Grant-in-Aid for Scientific and Research Training in Basic Sciences**

In 1967, the Indian National Science Academy approached the Government of India with a request that grant-in-aid be made available to the INSA to enable it to put into operation a scheme for Scientific Research and Research Training in Basic Sciences. The Government of India agreed to this suggestion and sanctioned the scheme in April 1969. The funds placed at the disposal of the Academy are administered by the Council on the advice of a Basic Sciences Committee.

## **6. Popularization of Science**

The grant-in-aid for popularization of science is provided for arranging popular lectures, especially aimed at the talented higher secondary students. Leading scientists are invited to talk on current developments in their areas of specialization in a language understandable to the interested non-specialists.

## **7. Inter-Academy Exchange Programme**

The Programme is aimed at establishing and fostering relations with similar academies of the world under approval of the Department of Science & Technology, Govt. of India. The prime interest lies in establishing exchange programme covering exchange visits of scientists particularly with the neighbouring countries like Sri Lanka, Bangladesh, Nepal etc., on reciprocal basis. Presently the Academy has exchange programme with the Royal Society, London and the Japan Society for Promotion of Science, Tokyo. Possibilities are being explored to initiate similar type of programme with the National Academy of Sciences, USA, Polish Academy of Sciences, Poland and Serbian Academy of Sciences & Arts, Yugoslavia. Under this programme, joint research activities and visits to institutions of interest are contemplated between the two countries.



# THE FELLOWSHIP 1979

## FELLOWS

<i>Date of Election</i>		<i>Service on Council</i>
1936 †ABRAHAM, WILLIAM ERNEST VICTOR, Maj.-Gen., C.B.E. (Specialization : Petroleum Geology). A.R.C.S., M.Inst.P.T. Formerly Member of Restrictive Practices Court and Managing Director, Burmah Oil Co. Ltd. <i>Kencor Manor, Lechlade Glos., GL7, 3QU, England.</i> [Telephone : <i>Filkins 212</i> ].		
1978 AGARWALA, SHIRISH CHANDRA, Ph.D. (Luck. & Bristol). (Specialization : Plant Physiology). Member : Ind. Bot. Soc., Ind. Soil Sci. Soc., Ind. Pl. Physiol. Soc. Professor & Head, Department of Botany, Lucknow University, Lucknow 226 007. 79 <i>Badshabagh, Lucknow</i> . [Telephone : <i>47 445 (Off.), 42 662 (Res.)</i> ].		
1972 †AHMAD, FAKHRUDDIN, M.Sc., Ph.D. (Specialization: Geotectonics, Gondwana Geology, Sedimentology), Commissioner, Geology and Mining, Government of Jammu & Kashmir, Jammu (Nov.-March), Srinagar (April-Oct.). <i>Srinagar : Drabu House, Gogji Bagh.</i> [Telephone : <i>Srinagar : 3467 (Off.), 3392 (Res.); Jammu : 5176 (Off.), 8481 (Res.)</i> ].		Oct. 1977-
1958 ALI, SALIM MOIZUDDIN ABDUL, D.Sc. ( <i>h.c.</i> ). (Specialization : Ornithology, Zoogeography, Nature Conservation). F.A.Sc. President, Bombay Natural History Society. 46, <i>Pali Hill, Bandra, Bombay</i> 400 050. [Telephone : <i>25 7277 (Off.), 53 2425 (Res.)</i> ]. <b>(Medal : Sunder Lal Hora Medal, 1971)</b>		Jan-Aug. 1967
1963 ANAND, BAL KRISHAN, M.B.B.S., M.D. (Specialization : Physiology & Medical Education). F.A.M.S., F.A.Sc. Programme Director (Biomedical Research), Family Planning Foundation, Blind Relief Association Bldg., Lal Bahadur Shastri Marg, New Delhi 110 003. Emeritus Professor, Physiology Department, All India Institute of Medical Sciences, New Delhi 110 016. <i>B9/21, Vasant Vihar, New Delhi</i> 110 057. [Telephone : <i>27 0181 (Off.), 67 2949 (Res.)</i> ].		
1970 †ANAND, NITYA, Ph.D. (Bom.), Ph.D. (Cantab.). (Specialization : Medicinal Chemistry) F.N.A.Sc., F.A.Sc. Director, Central Drug Research Institute, Lucknow. <i>B6/1, River Bank Colony, Lucknow</i> 226 001. [Telephone : <i>23 405 (Off.), 27 422 (Res.)</i> ].		1974-76

<i>Date of Election</i>	<i>Service on Council</i>
1967 ANANTAKRISHNAN, SEKHARIPURAM VENKATESWARAIYER, Ph.D. (Specialization : Physical Organic Chemistry), F.R.I.C., F.A.Sc. Formerly Professor of Chemistry, Madras Christian College, Tambaram, Madras 600 059. <i>A-1, State Bank Colony, Sastri Nagar, Adyar, Madras 600 020.</i>	1970-72
1961 †ANANTHAKRISHNAN RAMAKRISHNA IYER, M.A. D.Sc. (Specialization : Solar Physics & Meteorology). F.A.Sc. Ex-Director & Hon. Fellow, Indian Institute of Tropical Meteorology, University Road, Pune 411 005. <i>Flat No. 9, Praram Apartments, Lakaki Road, Pune 411 016. [Telephone : 55 221/288].</i>	
1977 ANANTHAKRISHNAN, TARACAD NARAYANAN B.Sc.(Hons), M.Sc., Ph.D., D.Sc. (Specialization : Entomology & Animal Ecology). F.A.Sc. Director, Zoological Survey of India, 34, Chittaranjan Avenue, Calcutta 700 012. <i>93, Belvedere Estate, Alipore, Calcutta 700 027. [Telephone : 26 9248 (Off.), 45 7023 (Res.)].</i>	
1972 ANANTHARAMAN, TANJORE RAMACHANDRA, M.A., M.Sc.,D.I.I.Sc.(Met.), D.Phil. (Oxon.). (Specialization: Physical Metallurgy & Materials Technology). F.I.M. (Lond.), F.I.E., F.A.Sc. Professor of Metallurgy, Banaras Hindu University, Varanasi 221 005. <i>FF/15, B.H.U., Varanasi 221 005. [Telephone : 54 290/250 (Off.)].</i>	1979-
1950 †ANTIA, DARA PIROJSHAW, Sc.D. (Specialization : Metallurgical Engineering, Mineral Economics & Industrial Management). F.I.M. Industrial and Management Consultant. <i>10 Judges Court Road, Flat No. 7, Alipore, Calcutta 700 027. [Telephone : 45 4600].</i>	Oct.1977-
1977 ASANA, RUSTOM DARASHA, M.Sc., Ph.D., D.I.C. (Specialization : Plant Physiology & Agronomy) Emeritus Scientist, Indian Council of Agricultural Research. Formerly Head, Division of Plant Physiology, Indian Agricultural Research Institute, New Delhi. <i>Jamasp Lodge, Tithal Road, Valsad 396 001.</i>	

<i>Date of Election</i>	<i>Service on Council</i>
1951 ASUNDI, RANGO KRISHNA, M.Sc., Ph.D. (Lond.). (Specialization : Atomic and Molecular Physics & Spectroscopy). F.A.Sc., F.N.A.Sc. Formerly Professor, Banaras Hindu University, and Physicist, Bhabha Atomic Research Centre, Bombay. 12 <i>Om shanti</i> , 16th Road, Main Avenue, Santa Cruz (West), Bombay 400 054. [Telephone : 53 4666]. <b>(Lecture : Kariamanikkam Srinivasa Krishnan Memorial Lecture, 1969)</b>	1968 V.P. 1969-70
1976 ASWATHANARAYANA, UPPUGUNDURI, M.Sc., D.Sc. (Specialization : Isotope Geochemistry). F.A.Sc. Professor of Geology, Dean of Technology and UGC National Fellow, University of Saugar, Sagar 470 003. B-10 Qrs., University of Saugar, Sagar 470 003. [Telephone : 2779].	
1953 †ATMA RAM, D.Sc., D.Sc. (h.c.). (Specialization: Glass & Ceramic Technology). Hon. F.S.G.T., Member of Merit, International Commission on Glass. Chairman, National Committee on Science and Technology, Technology Bhawan, New Mehrauli Road, New Delhi 110 029. Formerly Director-General, Council of Scientific & Industrial Research, New Delhi. C/o Group Captain R. K. Singhal, 36 Central Vista Hostel, Dr Rajendra Prasad Road, New Delhi 110 001. [Telephone : 65 0634 (Off.), 38 7149 (Res.)]. <b>(Medal : Shanti Swarup Bhatnagar Medal, 1959)</b>	1958-60, 62-64, 67-68 Govt. Rep. 1956, 1961 Ad. Mem. 1963, 71-72 V.P. 1965-66 Pres. 1969-70
1938 †AUDEN, JOHN BICKNELL, M.A., Sc.D. (Cantab.). (Specialization : Tectonics, Engineering Geology). F.A.S. Formerly Consultant to the Food & Agriculture Organization of the United Nations, Rome, and to UNESCO, Paris. 43 Thurloe Square, London, S.W. 72 SR. [Telephone : (01) 589 3144].	
1950 †AULUCK, FAQIR CHAND, Ph.D., D.Sc. (Specialization : Theoretical & Statistical Physics). Professor, Department of Physics and Astrophysics, University of Delhi, Delhi 110 007. A-7, D.D.A. Flats, Rajinder Nagar, New Delhi 110 060. [Telephone : 22 8993 (Off.), 58 5027 (Res.)].	1962-64 1969-70 Sec. 1965-68 Ed. Pub. 1971-74

*Date of  
Election*

*Service on  
Council*

- 1973 †BACHHAWAT, BIMAL KUMAR, Ph.D. (Specialization: 1975-77 Glycoconjugates, Neurochemistry & Enzyme-Engineering). F.A.Sc., Mem. Tamil Nadu Acad. Sci., Mem. Neurol. Soc. Director, Indian Institute of Experimental Medicine, Calcutta 700 032. *Director's Flat, 59 Lake Road, Calcutta 700 029* [Telephone : 46 9197 (Off.), 46 3494 (Res.)].  
**(Lecture : Bashambar Nath Chopra Memorial Lecture, 1977)**
- 1959 BAHADUR, RAGHURAJ, Ph.D. (N. Carolina). Department of Statistics, University of Chicago, Illinois,, USA.
- 1967 BALDEV SINGH, M.R.C.P.(Lond.). (Specialization : Neurology). F.A.M.S., Member IBRO. Emeritus Professor, Physiology Department, All-India Institute of Medical Sciences, New Delhi 110 016. *D II/52 Ansari Nagar, New Delhi 110 016*. [Telephone : 61 9481/238 (Off.), 62 4020 (Res.)].
- 1972 †BALIAH, VUPPALAPATY, M.Sc., Ph.D. (Stanford) Specialisation : Physical Organic Chemistry). F.A.Sc. Vice-Chancellor, Nagarjuna University, Nagarjunanagar 522 510, Guntur, A.P. Formerly Professer and Head of Chemistry Department, Annamalai University, Annamalainagar. *7th Line, Ghandramoulinagar, Guntur. 522 007*. [Telephone : 23 225 (Off.), 23 545 (Res.)].
- 1955 †BAMBAH, RAM PRAKASH, Sc.D. (Cantab.). (Specialization : Number Theory & Discrete Geometry). Professor, Mathematics Department, Panjab University, Chandigarh 160 014. *G-7, Sector 14, Chandigarh 160 014*. [Telephone : 25 142 (Off.), 26 795 (Res.)].  
**(Medal : Srinivasa Ramanujam Medal, 1979)**
- 1961 †BANERJEE, DILIP KUMAR, D.Sc. (Specialization : Synthetic Organic Chemistry), Formerly Director & Professor, Indian Institute of Science, Bangalore 560 012. *51/39, 1st Main Road, Lower Palace Orchard, Bangalore 560 003*. [Telephone : 32 340].

*Date of  
Election**Service on  
Council*

- 1952 †BANERJEE, SACHCHIDANANDA, M.B., M.Sc., D.Sc. (Specialization : Human Nutrition, Work Physiology & Drug Research). F.A.M.S., F.A.A.A.S. Formerly Professor and Head of the Department of Physiology & Biochemistry and Principal, Sardar Patel Medical College, Bikaner, Rajasthan. 23 B Tala Park Avenue, Calcutta 700 002 [Telephone : 55 2408 (Res.)].
- 1958 BANERJEE, TARAPADA, Ph.D.(Lond.), D.Sc. (Dacca). (Specialization : Electro & Extractive-Metallurgy). F.R.I.C., F.I.M. Formerly Director, National Metallurgical Laboratory and Professor of Natural Resources Development, Xavier Institute, Jamshedpur. 'Usha-Tara, 270 Sonari West, New Layout, Jamshedpur 831 011.
- 1968 BAPPU, MANALI KALLAT VAINU, M.A., M.Sc., Ph.D. (Specialization: Solar & Stellar Spectroscopy). F.R.A.S., F.A.Sc. Director, Indian Institute of Astrophysics, Bangalore 560 034. 527, 16th Main Road, Koramangala, Bangalore 560 034 [Telephone: 40 996 (Off.), 41 322 (Res.)]. 1972-74
- 1979 †BARNABAS, JOHN, Ph.D. (Specialization : Hemoglobins in Genetics & Evolution). F.A.Sc. Professor of Biochemistry and Head, Post-graduate School for Biological Studies, Ahmednagar College, Ahmednagar. Ahmednagar College, Ahmednagar. [Telephone : 1161 Ext. 8 (Off.) 1163 (Res.)].
- 1951 BASU, KALIPADA, D.Sc. (Dacca), Ph.D. (Munich). (Specialization : Biochemistry, Human Physiology, Nutrition & Dairy Chemistry). Formerly Adviser, Scientific Research, Planning Commission, Government of India, New Delhi, and Head of the Division of Dairy Chemistry, National Dairy Research Institute, Bangalore/Karnal. 229, Jodhpur Park, Calcutta 700 068. [Telephone : 46 8206].
- 1944 †BASU, NARENDRA MOHAN, M.Sc. (Specialization : Physiology, Biochemistry & Biophysics). Formerly Head of the Department of Physiology in the Presidency College, Calcutta. 63, Hindustan Park, Ballygunge, Calcutta 700 029. [Telephone : 46 1019].

*Date of  
Election**Service on  
Council*

1962	BASU, SADHAN, D.Sc. (Specialization: Molecular Spectra & Structure). F.R.I.C., F.A.Sc. Palit Professor of Chemistry, Calcutta University, 92 Acharya Prafulla Chandra Road, Calcutta 700 009. 9B/1, South Sinthee Road, Calcutta 700 050. [Telephone : 35 9686 (Off.), 56 3340 (Res.)].	1948-50 1965-67 Sec. 1957-60 Treas. 1961-64
1946 †BASU, SARADINDU, M.Sc. (Specialization : Meteorology, Geophysics & Geography). F.N.A.Sc. Formerly Director-General of Observatories and Joint Director and Joint Secretary, Indian Statistical Institute, Delhi/ Calcutta. L/25, Hauz Khas Enclave, New Delhi 110 016. [Telephone : 66 6482].	1952-54 Ad. Mem. 1950-51, 1964 Ad. V.P. 1961-63	
1949 †BHADURI, JNANENDRA LAL, M.Sc., P.R.S. (Cal.), D.Sc. (Edin.).(Specialization : Reproductive Endocrinology). Formerly Sir Nilratan Sircar Professor and Head of the Department of Zoology, Calcutta University. 70/1/1, Gouribari Lane, Calcutta 700 004. [Telephone: 55 1673].	1964-66	
1944 †BHADURI, PARAM NATH, Ph.D. (Lond.), D.Sc. (h.c., Burdwan University). (Specialization : Plant Cytogenetics). Emeritus Scientist (ICAR), B.C. Agricultural University, Mohanpur, Haringhata, West Bengal. Formerly Senior Professor of Botany and Vice-Chancellor, Burdwan University, Burdwan. P1/142, Kalyani, P.O. Kalyani, Distt. Nadia, West Bengal.	1951-53, 56-57,64, 1967-69 V.P. 1965-66	
1949 †BHAGAVANTAM, SURI, D.Sc. (Specialization: Solid State & Crystal Physics). F.A.Sc. President, COSTED, Indian Institute of Science, Bangalore 560 012. Formerly Scientific Adviser to Defence Minister, Govt. of India. 273, Rajamahal Exts, Bangalore 560 006. [Telephone : 30 628 (Off.), 35 498 (Res.)]. (Medal : Shanti Swarup Bhatnagar Medal, 1970)	1961-63	
1979 †BHAKUNI, DEWAN SINGH, D. Phil. (Alld.), Ph.D. (Lond.), D.I.C. (Imperial College). (Specialization : Natural Product Chemistry). F.N.A.Sc. Scientist-E, Medicinal Chemistry Division, Central Drug Research Institute, Post Box No. 173, Lucknow 226 001. B-310, Mahanagar, Lucknow. [Telephone : 32 411 (Off.)].		

*Date of  
Election**Service on  
Council*

- 1956 †BHAR, JATINDRA NATH, D. Sc., C. Eng. (Specialization : Ionospheric & Space Physics). F.I.E.R.E., F.I.E. Formerly Sir Rashbehary Ghose Professor of Physics & Head of the Department of Radio Physics and Electronics; and Director, Centre of Advance Study in Radio Physics and Electronics, Calcutta University, 92, Acharya Prafulla Chandra Road, Calcutta 700 009. *Lalbagan, Chandannagar 712 136, Hooghly Distt., West Bengal.* [Telephone : 35 9115 & 35 9116 (Off.), 370 CN (Res.)]. 1971-73
- 1976 †BHARGAVA, KAMESHWAR SAHAI, D.Phil., Ph.D. (Specialization : Mycology & Plant Pathology). Professor & Head of the Department of Botany, Gorakhpur University, Gorakhpur 273 001 [Telephone : 770 (Off.), 911 (Res.)].
- 1979 BHARGAVA, PUSHPA MITRA, Deputy Director & Head of Biochemistry Division, Regional Research Laboratory, Hyderabad.
- 1939 †BHARUCHA, FARIDOOON RUSTOMJI, M.Sc., D.Sc. (Specialization : Plant Ecology & Sociology). Formerly Director and Professor of Botany, Institute of Science, Bombay. *6 Alexandra Road, New Gamdevi, Bombay.*
- 1973 BHASKARAN, KALYANASUNDARA, M.B.B.S., M.Sc., Ph.D., F.A.M.S. (Specialization : Microbiology & Microgenetics). Formerly Scientist, Central Drug Research Institute, Lucknow. *8, Ragaviah Road, T. Nagar, Madras 60 0017.* [Telephone : 913].
- 1958 BHAT, JANARDHANA VENKATESH, Ph.D., D.Sc., F.A.Sc. (Specialization : Microbiology & Biochemistry). Director of Research, The Academy of General Education, Manipal 576 119. *407, Block 1, Rajajinagar, Bangalore 560 010.* [Telephone : 8060 (10 lines)/22 (Off.), 8060/14 (Res.)].
- 1955 BHATIA, MUKAND LAL, Ph.D., D.Sc. (Specialization: Zoology & Comparative Morphology). F.Z.S. (Lond.). Honorary Professor of Bio-sciences, Himachal Pradesh University, Simla. Formerly Professor of Zoology in the University of Delhi. *'Dhiraj', L/23 Hauz Khas Enclave, New Delhi 110 016.* [Telephone : 66 7777].

*Date of  
Election*

*Service on  
Council*

- 1956 †BHATTACHARYA, PUNYABRATA, M.Sc., Ph.D. (Edin.). (Specialization : Genetics & Reproductive Biology). Formerly Animal Husbandry Commissioner with the Government of India. *D/514, Vasant Vihar, New Delhi 110 057. [Telephone : 67 2664].*
- 1973 †BHATTACHARYA, SUNIL KUMAR, Ph.D. (Engg.), F.I.C.E. (Lond.), F.I. Struct.E. (Lond.). (Specialization : Physical Oceanography). Chief Hydraulic Engineer, Calcutta Port Trust; and Director, Institute of Port Management, 20 Garden Reach Road, Calcutta 700 043. 832, *P Block, New Alipore, Calcutta 700 053. [Telephone : 45 5453 (Off.), 45 8186 (Res.)].*
- 1979 BHATTACHARYYA, AMITABHA, B.M.E. (Hons.), (Jadavpur), M.E. (Cal.), M.S. (Illinois), P.R.S. (Cal.), Ph.D. (Engg.). (Specialization : Machine Tool Technology; Production Engineering). F.I.E. (Ind.), M.I. Prod. E. (Lond.), C. Engg. (U.K.), Mem. C.I.R.P. (Paris). Director, Indian Institute of Technology, Kanpur and Professor (Super-Num) Jadavpur University, Calcutta 700 032. *Director's Bungalow, Indian Institute of Technology, Kanpur (U.P.). [Telephone : 44 100 (Res.)].*
- 1976 BHATTACHARYYA, PRABHAT KUMAR, M.Sc., Ph.D. (Specialization : Biochemistry & Chemical Microbiology). F.A.Sc. Professor of Organic Chemistry, Indian Institute of Science, Bangalore 560 012. 58, 18th Cross (4th Main), Malleswaram, Bangalore 560 055. [Telephone : 34 411/406].
- 1966 BHATTACHARYYA, SASANKA CHANDRA Ph.D. (Dacca and Cantab.), Sc.D. (Cantab.). (Specialization: Organic Chemistry). F.A.Sc. Director, Bose Institute, 93/1 Acharya Prafulla Chandra Road, Calcutta 700 009. *AB-15 Salt lake, Calcutta, 700 064 [Telephone : 35 7073 (Off.), 36 1131 (Res.)].*  
*(Medal : T.R. Seshadri Seventieth Birthday Commemoration Medal, 1979)*
- 1954 BHATTACHARYYA, SUDHIR KUMAR, D.Sc. (Specialization : Catalysis & Chemical Kinetics). Formerly U.G.C. Professor in the Department of Chemistry, Faculty of Science, Banaras Hindu University, Varanasi 221 005.

<i>Date of Election</i>	<i>Service on Council</i>		
1968	BHIDE, VISHNU GANESH, M.Sc., Ph.D. (Nagpur and Lond.). (Specialization : Solid State Physics). F.A.Sc. Deputy Director, National Physical Laboratory, New Delhi 110 012. 10/12 Multistorey Building, NPL Colony, New Delhi 110 060 [Telephone : 58 2721 (Off.), 58 3005 (Res.)].	1975-77	Sec.
1948	†BHIMACHAR, BRAMHANDA SRINIVASAMURTHY, D.Sc. (Specialization : Fishery Biology), F.A.Sc., F.Z.S. Retired Director, Central Inland Fisheries Institute, Barrackpore, West Bengal, India. Anchorage, Plot No. 378, III Block, Koramangala Layout, Sarjapur Road, Bangalore 560 034. [Telephone : 40 534]. (Medal : Chandrakala Hora Memorial Medal, 1965).	1971-74	
1978	BHIMASANKARAM, V. L. S., M.Sc., D.Sc. (Specialization : Applied Geophysics). F.A.E.G. Professor and Head, Centre of Exploration Geophysics, Osmania University, Hyderabad 500 007. O.U.B. P/3 Osmania University Campus, Hyderabad 500 007. [Telephone : 71 797 (Off.), 71 053 (Res.)].		
1978	BISWAS, ANIL BHUSAN (Specialization : Structural Chemistry, Chemistry and Physics of the Solid State, Surface Science and Catalysis). Member: Indian Chemical Society, Indian Science Congress Association, Maharashtra Academy of Sciences and Indian Academy of Sciences, Bangalore. Professor of Chemistry, Indian Institute of Technology, Bombay 400 076, A-9, IIT Campus, Powai, Bombay 400 076. [Telephone : 58 1821, 58 1886 (Off.)].		
1978	BISWAS, BIRENDRA BIJAY, D. Phil. (Specialization: Plant Biochemistry, Nucleic Acid, Oncogenic Virus, Genetic Engg.). F.A.Sc. Professor and Head, Department of Biochemistry, Bose Institute, Calcutta 700 009. 30A, Lake Place, Calcutta 700 029 [Telephone : 35 2402/3 (Off.), 46 6049 (Res.)].		
1971	†BISWAS, SAMARENDR A NATH, M.Sc., Ph.D. (Specialization : Field Theory & High Energy Physics). F.N.A.Sc., F.A.Sc. Department of Physics, & Astrophysics, University of Delhi, Delhi 110 007. 38, Probyn Road, Delhi 110 007. [Telephone : 22 8993].		

*Date of  
Election**Service on  
Council*

- 1935 †BOMFORD, GUY, Brigadier, O.B.E., D.Sc. (Oxon.).  
 (Specialization : Geodesy). F.R.A.S., F.G.S. Formerly  
 Reader in Surveying and Geodesy, Oxford University,  
 Oxford, *Hainton Lodge, Sutton Courtenay, Oxon.*,  
*England*. [Telephone : 248].
- 1957 †BOSE, AKSHAYANANDA, D.Sc. (Specialization : Solid State & Cryogenics). Formerly Professor of Physics, Department of Magnetism and Life Member, Indian Association for the Cultivation of Science, Jadavpur, Founder-President and Foundation fellow (for life) Indian Cryogenics Council, Jadavpore University, Calcutta 700 032. *Kam dahari, Garia P.O.*, 24 *Parganas, West Bengal*. [Telephone : 46 9371/11 (Off.), 72 5656 (Res.)].
- 1938 †BOSE, NOLINI KANTO, M.Sc. Ph.D. (Gottingen).  
 (Specialization : Fluid Mechanics & Hydrology). 40/7  
*Gariahat Road (South), Calcutta 700 031*.
- 1948 BOSE, PROTOP CHANDRA, B.Sc. (Glas.), M.I.E. (Ind.).  
 (Specialization : Public Health & Town Planning).  
*P 596, CIT Scheme XLVII, Calcutta 700 022*.
- 1944 †BOSE, PRAFULLA KUMAR, D. Sc. (Specialization : Phytochemistry & Synthetic Organic Chemistry). Emeritus Scientist, CSIR. Formerly Director, Indian Lac Research Institute. 99/5 *Ballygunge Place, Calcutta 700 019*. [Telephone : 47 7353 (Res.)].
- 1969 BRAHM PRAKASH, M.Sc., Ph.D., Sc. D. (M.I.T.). 1970-72  
 (Specialization : Metallurgical Engineering). Director, Vikram Sarabhai Space Centre, Trivandrum 695 022. *Scientists' Hostel, Vikram Sarabhai Space Centre, ISRO Post, Trivandrum 695 022*. [Telephone : 3405 & 4671 (Off.), 5313 (Res.)].  
 (Medal : Shanti Swarup Bhatnagar Medal, 1979)
- 1953 †BUCHI, ERNST CARL, Ph.D. Professor, Free University, Berlin, and Director, Institute for Anthropology, Fabeckstrasse 15, D 1000, Berlin 33. *Lyckallee 11, D 1000, Berlin 19*. [Telephone : 83 82900 (Off.), 305 4864 (Res.)].

*Date of  
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*Service on  
Council*

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|-------------|--|---------|
| <p>1977</p> | <p>BURMA, DEBI PROSAD, M.Sc., D.Phil. (Specialization : Biochemistry &amp; Molecular Biology). F.A.M.S. F.A.Sc., Professor &amp; Head, Department of Biochemistry, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005. <i>DRG/1 Jodhpur Colony, B.H.U., Varanasi 221 005.</i> [Telephone : 54 290/362 (Off.), 54 290/392 (Res.)].</p>   |         |
| <p>1949</p> | <p>†CHAKRABARTY, SUBODH KUMAR, D.Sc. (Specialization : Applied Mathematics, Cosmic Radiation &amp; Geophysics). Formerly Sir Rashbehary Ghose Professor &amp; Head of the Department of Applied Mathematics, Calcutta University, <i>Santra Dighee (North), P.O. Raha, 24 Parganas, West Bengal 743 186.</i> [Telephone : 58 2904)].</p>   |         |
| <p>1955</p> | <p>†CHAKRAVARTI, DEVENDRA NATH, Lt. Gen., M.B.B.S., D.T.M. &amp; H.D.B. (Lond.). (Specialization : Microbiology, Epidemiology &amp; Immunology). F.S.M.F., F.A.F.Sc., F.I.P.H.A., F.A.M.S. Formerly Director-General, Armed Forces Medical Services, Ministry of Defence, and Secretary, Health, and Director of Health Services, Govt. of West Bengal. <i>62 Syed Amir Ali Avenue (Ground Floor), Calcutta 700 019.</i> [Telephone : 44 1400 (Off.), 44 7940 (Res.)].</p> |         |
| <p>1956</p> | <p>†CHAKRAVARTI, RAM NARAYAN, D.Sc. (Specialization : Organic, Medical &amp; Phytochemistry). F.R.I.C., F.I.C., F.A.S. Formerly Director, Indian Institute of Experimental Medicine, Calcutta 700 032. <i>111, Block F, New Alipore, Calcutta 700 053.</i> [Telephone : 45 6857]. (<b>Lectureship : Sisir Kumar Mitra Lecture, 1972</b>)</p>   | 1965-67 |
| <p>1968</p> | <p>CHAKRAVARTI, RAMBALLAV, B.E. (Civil). (Specialization : River &amp; Hydraulic Engineering). F.I.E., F.A.S.C.E. Chairman, High-powered Technical Committee for Teesta Project, Government of West Bengal, and Adviser to the Corporation of Calcutta. <i>370/1, N.S.C. Bose Road, Calcutta 700 047.</i> [Telephone : 72 3727 (Res.)].</p>  |         |
| <p>1979</p> | <p>CHAKAVORTY, ANIMESH, Ph.D. (Specialization : Inorganic &amp; Structural Chemistry). F.A.Sc., Professor &amp; Head, Department of Inorganic Chemistry, Indian Association for the Cultivation of Science, Calcutta 700 032. <i>514 Jodhpur Park, Calcutta 700 068.</i> [Telephone : 46 9371 (Off.), 46 0894 (Res.)].</p>   |         |

*Date of  
Election*

*Service on  
Council*

- 1978 CHANDRASEKHAR, SIVARAMAKRISHNA, Ph. D., D.Sc. (Specialization : Liquid Crystals, Optics, X-ray Diffraction). F.A.Sc., F.N.A.Sc. Professor, Liquid Crystals Laboratory, Raman Research Institute, Bangalore 560 006. *Raman Research Institute, Bangalore 560 006.* [Telephone : 30 124 (Off.), 32 356 (Res.)].
- 1954 †CHANDRASEKHARAN, KOMARAVOLU, M.A., M.Sc., Ph.D. Lehrstuhl für Mathematik, Eidg. Technische Hochschule, Ramistrasse 101, 8092 Zurich, Switzerland. *Hedwigstrasse 29, 8032 Zurich, Switzerland.* [Telephone : 32 6211 (Off.)].  
(Medal : Srinivasa Ramanujan Medal, 1966)
- 1973 CHATTERJEA, JNANENDRA NATH, M.Sc., D.Phil. (Oxford), D. Sc. (Specialization : Synthetic Organic Chemistry). F.I.C., F.N.A.Sc. Head of the Department of Chemistry, Patna University, Patna 800 005. *Road 6 B, Rajendranagar, Patna 800 016.* [Telephone : 52 214 (Off.), 52 113 (Res.)].
- 1961 †CHATTERJEE, ASIMA (Mrs), D.Sc., P.R.S. (Specialization : Natural Product Chemistry). F.A.Sc. Khaira Professor and Head of the Department of Pure Chemistry, Calcutta University, University College of Science, 92 Acharya Prafulla Chandra Road, Calcutta 700 009. 108, *Manicktala Main Road, Flat 3, Block 1, Calcutta 700 054.* [Telephone : 35 9186, 35 9189 (Off.), 35 7105 (Res.)]. Ad. Mem. 1973-75
- 1963 †CHATTERJEE, GURU PRASAD, Ph.D. (Met.), Ph.D. (Physics). (Specialization: Metal & Material Science). F.I.E. Formerly Professor of Metallurgy and Research and Scientific adviser, Hindustan Steel Limited; Hon. Tech. Adviser, Alloy Steels Plant, Steel Authority of India Ltd., Durgapur 713 208. *Vidya Sadan, Rama Krishna Palli, P.O. Durgapur 713 203.* [Telephone : 2301/101 (Off.)]
- 1955 †CHATTERJEE, SYAMA DAS, D.Sc. (Specialization : Nuclear Physics). S.M.I.E.E.E., M.R.I. Emeritus Professor, Jadavpur University, Jadavpur, Calcutta 700 032. 91 *Ballygunge Place, Calcutta 700 019.* [Telephone: 46 3451 (Off.), 47 7451 (Res.)].

*Date of  
Election**Service on  
Council*

- 1950 CHAUDHURI, RABINDRA NATH, M.B. (Specialization: 1968-70 Tropical Medicine). F.R.C.P. (Edin.), T.D.D. (Wales), F.S.M.F., F.A.M.S. Formerly Director, Calcutta School of Tropical Medicine; Emeritus Medical Scientist, I.C.M.R.; W.H.O. Consultant South-East Asia. *P 77, Jodhpur Park, Calcutta 700 068.* [Telephone: 468 175].
- 1978 CHIDAMBARAM, RAJAGOPALA, Ph.D. (Specialization: Materials Science, Crystallography). F.A.Sc. Head, Neutron Physics Section, Bhabha Atomic Research Centre, Bombay 400 085. 4A, *Atomic Energy Apartments, Little Gibbs Road, Bombay 400 006.* [Telephone: 52 3321 (Off.), 366 194 (Res.)].
- 1978 CHOPRA, KASTURI LAL, Ph.D. (Specialization: Solid State Physics). F.A.P.S. Senior Professor and Dean, Post-graduate Studies & Research, Indian Institute of Technology, New Delhi 110 029. 10, *West Ave., IIT Campus, Hauz Khas, New Delhi 110 029.* [Telephone: 65 3474 (Off.), 66 6979/268 (Res.)].
- 1978 CHOUDHURY, BISHWAJIT, Ph.D. [Specialization : Horticulture (Vegetable Crop Improvement)]. F.R.H.S., F.N.A.Sc. Head, Division of Vegetable Crops and Floriculture, Indian Agricultural Research Institute, New Delhi. *Bungalow No. 3, I.A.R.I., New Delhi 110 012.* [Telephone : 58 3628 (Off.), 51 6367 (Res.)].
- 1972 †CHOWDHURY, AMIYA, B., M.B.B.S., Ph.D. (Specialization : Microbiology, Parasitology & Immunology). F.A.M.S. Director, School of Tropical Medicine, Calcutta 700 012. *11 Lake View Road, Calcutta 700 029.*
- 1935 †CHOWLA, SARVADAMAN, M.A., Ph.D. Research Professor, Department of Mathematics, McAllister Building, Pennsylvania State University, University Park, Pa. 16802, U.S.A.
- 1975 DANIEL, RANJAN ROY, M.Sc., Ph.D. (Specialization : Space Physics and Infra-red Astronomy). F.I.A.Sc. Senior Professor of Physics, Tata Institute of Fundamental Research, Bombay 400 005. 801 *Colaba Housing Colony, Homi Bhabha Road, Bombay 400 005.* [Telephone : 21 9111 (Off.), 211 110 (Res.)].

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*Service on  
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|------|---|--|
| 1951 | DAS GUPTA CHITTA RANJAN, M.B., D.T.M. (Cal.).<br>(Specialization : Haematology & Nutrition). Formerly Head of the Department of Haematology, School of Tropical Medicine, Calcutta. 1/25 <i>Prince Golam Mohammad Road, Kalighat, Calcutta 700 026.</i> [Telephone : 46 3116].  |  |
| 1974 | DAS GUPTA, MRINAL KUMAR, M.Sc. (Dacca), Ph.D. (Manch.). (Specialization : Radio Astronomy & Solar Terrestrial Physics). Professor & Head of the Department, and of the Centre of Advanced Study in Radio Physics and Electronics, Calcutta University, 92 Acharya Prafulla Chandra Road, Calcutta 700 009. <i>P 282 Kankurgachi, Second Lane, Calcutta 700 054</i> [Telephone : 35 9115 & 35 9116 (Off.)].  |  |
| 1958 | †DAS GUPTA, NIRAJ NATH, M.Sc., Ph.D. (Lond.).<br>(Specialization : Molecular Biophysics & Electron Microscopy). F.A.S. Formerly Sir Tarak Nath Palit Professor & Head of the Department of Physics, University of Calcutta, Calcutta. 44 <i>Hazra Road, Calcutta 700 019</i> [Telephone : 47 2911 (Res.)].  | 1970-72<br>Ad. Mem.<br>1968-69,<br>1976-78 |
| 1958 | †DAS GUPTA, SACHINDRA NATH, Ph.D. (Lond.), 1962-64<br>D.Sc. (Lond.). (Specialization : Plant Pathology). F.A.Sc., F.N.A.Sc. Formerly Professor of Botany, University of Lucknow, Counsellor in Agricultural Sciences, United Nations Educations Scientific and Cultural Organisation, Paris, Member, West Bengal Public Service Commission, and Vice-Chancellor, University of Kalyani, West Bengal. 1-B, <i>Judges Court Road, Alipore, Calcutta 700 027.</i> [Telephone : 45 4190]. |  |
| 1979 | DASS, CHUNCHINKATTE MELKOTE SRINIVAS, M.Sc., Ph.D. (Mysore); Ph.D. (Wisconsin). (Specialization : Cell Biology)—Cellular Ultrastructure and Function, Professor of Zoology, University of Delhi, Department of Zoology, Delhi 110 007. A4, 29/31, <i>Chhatra Marg, Delhi 110 007.</i> [Telephone : 22 8995 (Off.)].   |  |

*Date of  
Election**Service on  
Council*

- 1969 DATEY, KESHAVRAO KRISHNARAO, Hon. Brigadier, SEM, M.D., F.C.H.S. (Canada) (Specialization : Cardiology). F.R.C.P. (Lond.), F.P.C.C. (Hon.), F.A.C.C., F.A.M.S., F.R.S.A., D.C.H., F.A.C.P. (Hon.), F.A.A.B.S., F.R.C.P. (Edin.), D.T.M. & H.F.I.C.A., F.C.C.P., F.M.A.S., F.I.C.P.M. Director, Department of Cardiology, Medical Research Centre, Bombay Hospital, Bombay 400 020. 'Windsor House', Opp. Oval, Churchgate, Bombay 400 020. [Telephone : 29 5060, 29 5040 & 31 3200].
- 1967 DAYAL, BISHESHWAR, D.Sc., A.I.I.Sc. (Specialization: Solid State Physics). F.N.A.Sc., F. Inst. P. (Lond.), Emeritus Professor, Institute of Advanced Studies, Division of Physical Sciences, Meerut University, Meerut 250 001. Formerly Professor & Head in the Department of Physics, Banaras Hindu University. 25/3 Kambalwala Bagh, Ram Bagh Road, Muzaffarnagar 251 001.
- 1957 DEB, SIVASUNDER, Dr. es Sc. (Sorborne.) (Specialization : Economic Geology). Formerly Professor & Head in the Department of Geological Sciences, Jadavpur University. P 467, C.I.T. Road Ballygunge, Calcutta 700 029. [Telephone : 46 4801]. Ad. Mem. 1977-78
- 1974 DEO, MADHAV GAJANAN, M.B.B.S., M.D. (Path.), Sec. Ph.D. (Specialization : Pathology, Cell Biology & Medicine). F.A.Sc., F.A.M.S. Research Director, Cancer Research Institute, Parel, Bombay 400 012. 29, Kenilworth, 53, Peddar Road, Bombay 400 026 [Telephone : 442 703 (Off.), 362 375 (Res.)].  
(Lecture : Bires Chandra Guha Memorial Lecture, 1978)
- 1977 †DEODIKAR, GOVIND BALAKRISHNA, B.Sc., L.L.B., Ph.D. (Specialization : Biology, Genetics & Botany). F.A.Sc. Director & Professor of Genetics and Economic Botany, Maharashtra Association for the Cultivation of Science Research Institution, Law College Road, Pune 411 004. Near L.I.C. Shivaji Nagar, Pune 410 005. [Telephone : 56 357 (Off.), 54 467 (Res.)].

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Election**Service on  
Council*

- 1942 †DESAI, RANCHHODJI, DAJIBHAI, D.Sc. (Lond.), D.I.C. (Specialization : Synthetic Organic Chemistry). F.R.I.C., F.I.I.Sc., F.A.Sc., F.I.C. Formerly Principal, M.G. Science Institute, Ahmedabad. 'Rasayan', Suketu Society, Navrangpura, Ahmedabad 380 009. [Telephone : 44 181].
- 1966 DESHPANDE, BALKRISHNA GANESH, M.Sc., Ph.D. 1977 (Specialization: Petroleum Geology & Hydro-geology), Professor of Geology, University of Dar es Salaam, P. O. Box 35052, Dar es Salaam, Tanzania.
- 1966 DESIKACHARY, THAMARAPU VEDANTHA, Ph.D., D.Sc. (Specialization : Botany—phycology). F.A.Sc. Emeritus Professor, University Botany Laboratory, Chepauk, Madras 600 005. 3/23C, St. Mary's Road, Mandavalli, Madras 600 028. [Telephone : 845775 Ex. 18 (Off.), 75 047 (Res.)].
- 1952 †DESSAU GABOR, Professor, Dr. Ing. (Mining). (Specialization : Economic Geology). Professor of Economic Geology, Istituto di Geologia dell' Universita, Via S. Maria 53, I-56100 Pisa, Italy. Hotel la Pace, Viale A, Gramsci 14, I-56100 Pisa, Italy. [Telephone : 050-45215 (Off.), 050-29351 (Res.)].
- 1961 DEY, ABANI KUMAR, Ph.D., D.I.C. (Lond.). (Specialization: Economic & Urban Geology). Chairman, Mineral Club of India. Formerly Senior Specialist, Mineral Resources, Planning Commission, New Delhi. B7/84 Safdarjang Enclave, New Delhi 110 016. (Aug.-Oct. and April-May) [Telephone: 666921)]. 17, Lake Temple Road, Calcutta 700 029. (Rest of the year) (Telephone: 410 537).
- 1973 DHAR, MANOJIT MOHAN, Ph.D. (Manchester). (Specialization : Natural Products & Peptides). Mem. Soc. Biol. Chem. (India). Deputy Director and Scientist-in-Charge, Medicinal Chemistry Division, Central Drug Research Institute, Post Box No. 173, Lucknow 226 001. VI/3, CSIR Colony, Lucknow 226 007. [Telephone : 24 273 (Off.), 81 655 (Res.)].

*Date of  
Election*

<i>Date of Election</i>	<i>Service on Council</i>
1960 DHAR, MOTI LAL, M.Sc., Ph.D. (Specialization : Medicinal Chemistry). F.N.A.Sc., F.A.Sc. F.I.C. Formerly Vice-Chancellor, Banaras Hindu University Varanasi B. 1 <i>Pamposh Enclave, Greater Kailash, New Delhi 48</i> [Telephone : 631 010 (Res.)].	1970-72 Ad. Mem. 1974-75 Treas. Jan. 2 Feb. 1977
1935* †DHAR, NIL RATAN, D.Sc. (Lond. & Paris), Hon. D.Lit. (Vishwa Bharati), Hon. D.Sc. (Cal., BHU and Gorakhpur). F.R.I.C. (Lond.), F.N.A.Sc., F.A.M.F.A.A., Corr. Mem. F.A.S. I.E.S. (retired). Director, Sheila Dhar Institute of Soil Science, University of Allahabad, Allahabad. 2D <i>Beli Road, Allahabad</i> . [Telephone: 52 986].	1964-66 Ad.V.P. 1951,1963 Ad. Mem. 1950, 1970-71
1979 DHAWAN, BHOLA NATH, M.B.B.S. M.D. (Specialization : Pharmacology, Neuro, Clinical & of Natural Products). Head, Division of Pharmacology & Deputy Director, Central Drug Research Institute, P.B. No 174, Lucknow 226 001, 3, <i>Rama Krishna Marg, Lucknow 226 007</i> . [Telephone : 44 156 (Off.), 81 166 (Res.)].	
1978 DHAWAN, SATISH, Ph.D. (Specialization: Aeronautics & Space, Engineering Education). F.A.Sc. Forgn. Assoc. Natl. Acad. Engg. (USA), Hon. Mem. Am. Acad. Arts & Sci. Director, Indian Institute of Science, Bangalore 560 012, and Secretary to Government of India, Department of Space, Bangalore 560 009. <i>Bungalow No. 5, Indian Institute of Science, Bangalore 560 012</i> . [Telephone: 31 690/29 822 (Off.), 31 254 (Res.)].	
1979 DINESH MOHAN, Director, Central Building Research Institute Roorkee.	
1977 DORAISWAMY, LAKSHMANGUDI KRISHNAMURTHY, M.S., Ph.D. (Specialization : Chemical Engineering). F.A.Sc., Mem. I.I.Ch.E. Director and Head, Division of Chemical Engineering and Process Development, National Chemical Laboratory, Pune 411 008. A-1, <i>NCL Colony, Pune 411 008</i> . [Telephone: 53 416 (Off.), 53 417 (Res.)].	

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- 1957 DOSS, KADARUNDALIGE SITARAMA GURURAJA, D.Sc. (Specialization: Electrochemistry, Sugar Technology & Chemical Engineering). C. Chem., F.R.I.C., F. Inst.P., F.A.Sc. Hon. Fellow of Sugar Technologists' Association of India and Technical Adviser, Ardee & Co., Madras. Formerly Director, Indian Institute of Sugar Technology, Kanpur and Director, Central Electrochemical Research Institute, Karaikudi 8 Balaraj Road, Adyar, Madras 600 020. [Telephone: 41 3286, 41 3016].
- 1962 DUTT, ANIL BHUSAN, D.Sc. (Specialization: Coal Geology). Formerly Director of Geology & Mining, Govt. of Assam. 10 Cornfield Road, Ballygunge, Calcutta 700 019. [Telephone: 46 2663].
- 1935 †DUTT, SIAHI BHUSAN, M.A., P.R.S. (Cal.), D.Sc., Ad. Mem. D.I.C. (Lond.). (Specialization: Dyestuffs & Plant Products). 84, Lucknow Road, Delhi 110 007. [Telephone: 22 9305].
- 1948 †DUTTA, ARUN KUMAR, D.Sc. (Specialization: Nuclear-binding Energy). Formerly Palit Professor of Physics, Calcutta University. 131/35, N. S. C. Bose Road, Calcutta 700 040. [Telephone: 46 6407]. 1963-65
- 1963 DUTTA, NIRMAL KUMAR, M.B.B.S., D.Phil. (Oxon.), D.Sc. (Oxon.). (Specialization: Bacteriology, Pharmacology & Experimental Medicine). F.A.M.S. Director Research Centre, Bhailal Amin General Hospital, Bhailal Amin Marg, Baroda 390 003. Formerly Special Director, Vaccine Institute, Baroda 390 007. Bangalow No. 1, Vaccine Institute Compound, Old Padra Road, Baroda 390 007. [Telephone: 64 932 (Off.), 63 987 (Res.)].
- 1971 DUTTA, PHANINDRA CHANDRA, D.Sc., (Specialization : Organic Synthesis). F.A.Sc. Formerly Professor & Head of the Deptt. of Organic Chemistry, Indian Association for the Cultivation of Science, Calcutta 700 032. P. 799, P Block, New Alipore, Calcutta 700 053. [Telephone : 45 8257]. 1975-77

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- 1948 †DUTTA ROY, RUKMINI KISHORE, Dr. Ing. [Specialization : Inorganic-(including Analytical) & Geochemistry]. Formerly Chief Chemist, Geological Survey of India. 701F, P Block, New Alipore, Calcutta 700 053.
- 1957 †ESH, GOPES CHANDRA, M.Sc., Ph.D. (Ohio). (Specialization : Biochemistry & Nutrition). F.I.C., F. Sigma XI (USA). Formerly Professor & Head, Deptt. of Biochemistry and Vice Dean, Faculty of Science, University of Science and Technology, Kumasi, Ghana. B/10, Government Housing Estate, P.O. Entally, Calcutta 700 014. [Telephone : 44 2229].
- 1946 †GANAPATHI, KRISHNAMURTHI, D.Sc. (Specialization : Chemotherapy & Chemical Microbiology). F.A.Sc. Formerly Director, Regional Research Laboratory, Jammu. 10A, Customs Colony, Besantnagar, Madras 600 090. [Telephone : 414682]. 1968-69
- 1961 GANAPATI, PONANI NARAYANA, M.A., D.Sc. (Specialization : Protozoology—Marine Biology). F.A.Sc., F.Z.S.I. Professor Emeritus, Department of Zoology, Andhra University, Waltair. 'Sriniketan', Waltair, Visakhapatnam 530 003, Andhra Pradesh. [Telephone : 4871/230].
- 1979 GANGULEE, HIRENDRA CHANDRA, D.Sc. (Specialization: Bryology & Rice Genetics). U.G.C. Professor of Botany, Calcutta University, 35 Ballygunge Circular Road, Calcutta 700 019. A-5 Karaya Govt. Housing Estate, Calcutta 700 019. [Telephone: 473681 (Off.), 44 1394 (Res.)].
- 1972 †GANGULI, HARISH CHANDRA, M.A., D.Phil., D.Litt. (Specialization : Industrial Psychology & Mental Health). Professor of Psychology, University of Delhi, Delhi 110 007. F8/13, Model Town, Delhi 110 009. [Telephone : 22 1421/298 (Off.), 22 6080 (Res.)].
- 1979 GANGULY, ANIL KUMAR, D.Sc. (Specialization: Environmental Sciences, Radiation Physics & Chemistry). F.A.Sc. National Fellow (DST), Bhabha Atomic Research Centre, Trombay, Bombay 400 085. 'Harshnath', 1 Saras Baug, Sion-Trombay Road, Deonar, Bombay 400 084. [Telephone: 52 3566 (Off.), 52 1479 (Res.)].

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- 1968 GANGULY, JAGANNATH, M.Sc., Ph.D., D.Sc. (Specialization : Vitamin A, Lipids & Biochemistry). Chairman, Department of Biochemistry, and Head of U.G.C. Advanced Centre of Biochemistry, Indian Institute of Science, Bangalore 560 012. 281 *Raja Mahal Vilas Extn.*, Bangalore 560 012. [Telephone : 34 411 (Off.), 31 304 (Res.)].  
**(Lecture : Bires Chandra Guha Memorial Lecture, 1975)**
- 1935 †GEE, E.R., M.A., F.G.S. *Chilton, 3 Felton Crescent High Cliff, Christ Church, Hampshire, England.*
- 1975 †GEORGE, MANAPURATHU VERGHESE, M.Sc., Ph.D. (Specialization : Organic Reactions & Photochemistry). Professor of Chemistry, Indian Institute of Technology, Kanpur 208 016. *House No. 520, IIT Campus, Kanpur 208 016.* [Telephone : 43 531 (Off.)].
- 1950 GHATAGE, VISHNU MADHAV, M.Sc., D.Phil. (Göttingen). (Specialization : Aeronautical Engineering). F.A.Sc., F.I.E. (Ind.), M.Ae. S.I. Managing Director, Product Designers Private Limited, Bangalore 560 046. Formerly General Manager, HAL, Bangalore. 7 *Bore Bank Road, Bangalore 560 046.* [Telephone : 56 036 (Off. & Res.)].
- 1978 GHOSH, ASOK, Ph.D. (Specialization : Comparative Endocrinology, Histology, Histochemistry). Sir Nilratan Sircar Professor of Zoology and Head of the Department, Calcutta University, 35 Ballygunge Circular Road, Calcutta 700 019. 19A, *Ballygunge Place, Calcutta 700 019.* [Telephone : 47 3681 (Off.)].
- 1942 †GHOSH, BHUPENDRA NATH, D.Sc. (Lond.). (Specialization : Physical Chemistry). Professor of Chemistry, University College of Science, 92 Acharya Prafulla Chandra Road, Calcutta 700 009. 135 *Rashbehary Avenue, Calcutta 700 029.*
- 1962 GHOSH, NANDA LAL, M.Sc., D.Phil. (Specialization : Theoretical Mechanics & Fluid Dynamics), Formerly Professor & Head of the Department of Mathematics in the Presidency College, Calcutta, and in the Department of Mathematics, Burdwan University, Burdwan. *Sarvamongla Co-operative Housing Colony, Baburbagh, Burdwan.* [Telephone : 3032].

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1968 GHOSH, SATYENDRA NATH, D.Sc., (Specialization : Applied Physics, Communication & Upper Atmosphere). F.N.A.Sc., M.I.E.T.E. Sir Rashbehary Ghose Professor of Applied Physics, Calcutta University, 92 Acharya Prafulla Chandra Road, Calcutta 700 009. 102 Southern Avenue, Flat 2B, Calcutta 700 029. [Telephone : 35 9187 (Off.), 46 9923 (Res.)].	Ad. Mem. 1972-73
1954 GHOSH, SATYESWAR, D.Sc. (Specialization : Physical Chemistry). Formerly Professor & Head of the Department of Chemistry in the Universities of Allahabad and Jabalpur. 21-B, B. K. Banerjee Road, New Katra, Allahabad 211 002. [Telephone : 2468].	Ad. Mem 1955-56, 1960 Ad. V.P. 1961
1979 GHOSH, SUBIR KUMAR, F.D. (Uppsala), Ph.D. (Specialization : Structural Geology). Reader, Department of Geological Sciences, Jadavpur University, Calcutta 700 032. 29, Sardar Shankar Road, Calcutta 700 029. [Telephone : 46 3451 (Off.)].	
1977 †GHOSH, TARIT KUMAR, M.D. (Specialization : Medical Science—Neurology Electroencephalography). F.I.C.A. (U.S.A.), F.A.M.S. (India) Professor & Head, Department of Neurology, University College of Medicine, Calcutta University, Calcutta 700 019. Formerly, Director-Professor & Head of the Department of Neurology, Institute of Post-graduate Medical Education & Research and Bangur Institute of Neurology Calcutta. 28/1A Gariahat Road, Flat 5, Block I, Calcutta 700 029. [Telephone : 44 6833 (Hospital) 46 6828 (Res.), 24 4588 (Clinic)].	
1945 †GILL, PIARA SINGH, M.S., Ph.D. (Chicago). (Specialization : Cosmic Rays). F.A.P.S. Professor Emeritus, Punjab Agricultural University, Ludhiana. 173, Sector 19-A, Chandigarh 160 019. [Telephone : 23 637 (Res.)].	1954-56 1958-59 Ad. mem. 1957, 1962 F. Sec. 1961-64
1935 †GLENNIE, EDWARD AUBREY, C.I.E., D.S.O. Brigadier, Seaton House, Shrublands Road, Berkhamsted, Herts, England.	1946

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1968	GOPAL-AYENGAR, ANEKAL RAMASWAMIENGAR, M.Sc., M.A., Ph. D. (Toronto), D.Sc. (Hon. Mysore), D.Sc. (Hon., Hannover). (Specialization : Radiobiology, Chromosome-breakage mechanisms & Repair). F.A.Sc. Visiting Professor, Institut für Biophysik, Technische Universität Hannover, Herrenhauser Strasse 2, D-3000 Hannover 21 (Federal Republic of Germany). <i>Apartment 442, Bischofsholer Damm 85, 3000 Hannover (FRG)</i> . [Telephone : 76-2607 (Off.), 8508-8045 (Res)].	1972-75
1966	GOPALAN, COLUTHUR, M.D., Ph. D. (Lond.), D.Sc. (Lond.). (Specialization : Nutrition & medical Research). F.R.C.P. (Edin.), F.A.Sc., F.A.M.S., Director General, Indian Council of Medical Research, Ansari Nagar, New Delhi 110016. 19 <i>Teenmurti Marg, New Delhi</i> :-110011 [Telephone : 66 8456, 66 7204 (Off.), 37 5982 (Res)].	1969-71
1962	GOVINDA RAO, N.S., B.E. (Civil) [Specialization : Hydraulic Engineering (Civil)]. Hon. Life F.I.E. (Ind.) Formerly Adviser, Central Board of Irrigation and Power and Professor, Indian Institute of Science, Bangalore. 89 <i>Diagonal Road, Bangalore</i> 560 004. [Telephone : 62 313].	
1959	GOVINDACHARI, TUTICORIN RAGHAVACHARI M.Sc. Ph. D. (Specialization : Organic Chemistry) F. I.C.S., F.A.Sc., Retired Director, CIBA-GEIGY Research Centre, Bombay. 22, <i>Crescent Park St., T. Nagar, Madras</i> 600 017. [Telephone : 44 4349]. <b>(Medal : Meghnad Saha Medal, 1975)</b>	1966-68
1956	GULATEE BIHARI LAL, M.A. (Cantab.). (Specialization: Geodesy & Geophysics). Formerly Director, Geodetic & Training Circle, Survey of India, and Director-General, Lands & Surveys, Govt. of Ethiopia, Addis Ababa. 28 <i>Nehru Road, Dehra Dun</i> . [Telephone : 3693].	
1950	†GUPTA, HANSRAJ, M.A., Ph. D. (Specialization : Number Theory & Combinatorics). Mem. : Ind. Math. Soc., Am. Math. Soc. Edinb. Formerly Director in the Centre of Advanced Study in Mathematics, Panjab University, Chandigarh. 402 <i>Mumfordganj, Allahabad</i> 211 002 [Telephone : 53 765].	1967-69

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- 1960 †GUPTA, SURAJ NARAYAN, M.Sc., Ph. D. (Cantab.). (Specialization : Quantum Field Theory). Distinguished Professor of Physics, Wayne State University, Detroit, Michigan 48202, USA. 1300 *East Lafayette Boulevard, Detroit, Michigan 48202, USA.* (*Telephone* : (313) 577-2721 (*Off.*))
- 1973 †HARIHARAN, PARAMESWARAN, M.Sc., Ph.D (Specialization : Optics). F. Inst. P., Fellow Optical Society of America, F.A.Sc. CSIRO, P. O. Box 218, Lindfield, NSW, Australia 2070. 104, *The Comenarra Parkway, Turramurra, Australia 2074* [*Telephone* : 467-1801 (*Off.*), 449-4176 (*Res.*)].
- 1975 HARISH-CHANDRA. (Specialization : Harmonic Analysis). Professor of Mathematics, The Institute for Advanced Study, Princeton, New Jersey 08540, USA. 95 *Battle Road, Princeton, N.J. 08540, USA.* [*Telephone* : (609) 924-4400 Ext. 314].  
**(Medal : Srinivasa Ramanujan Medal, 1974)**
- 1948 †HEILIG, ROBERT, M.D. (Vienna). (Specialization : Human Physiology & Nutrition). F.A.I.M., F.A.M.S. Professor Emeritus of Medicine, Jaipur. *Metropol Apartments, Gonzagagasse 2/6, A 1010 Wien, Austria.* [*Telephone* : 63 03 27 17].
- 1957 †HUZURBAZAR, VASANT SHANKAR, M.A., Ph.D. (Cantab.). (Specialization : Probability & Mathematical Statistics). F.S.S , F.A.Sc., Presently Visiting Professor of Statistics, Department of Statistics, University of Manitoba, Winnipeg, Manitoba, Canada R3T 2N2. Senior Professor & Head of the Department of Mathematics and Statistics, University of Poona, Pune 411 007. "Punarvasu". *Senapati Bapat Road, Pune 411 016.* [*Telephone* : 56 061 (*Off.*), 55 571 (*Res.*)].
- 1976 IYENGAR, PADMANABHA KRISHNAGOPALA, M.Sc., Ph.D. (Specialization : Solid State & Nuclear Physics). F.A.Sc., Director, Physics & Metallurgy Groups, Bhabha Atomic Research Centre, Bombay 400 085. 33 *Saras Baug, Deonar, Bombay 400 088.* [*Telephone* : 52 2728 (*Off.*), 52 6163 (*Res.*)].

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- 1951 TIYER, PERINGANDUR VENKITESWARA KRISHNA, M.A., D.Phil. (Oxon). (Specialization : Statistical Theory & Applications). Formerly Professor of Statistics in the Panjab University, Chandigarh and Visiting Professor in the University of Queensland, Brisbane. 14, Manning Street, Rozatta, Sydney 2039, Australia. [Telephone : 371-3788].
- 1973 JAGANNATHAN, VENKATARAMAN, Ph.D. (Stanford). (Specialization : Biochemistry & Plant Tissue Culture). F.A.Sc. Head of the Division of Biochemistry, National Chemical Laboratory, Pune 411 008. B-6 National Chemical Laboratory, Pashan Road, Pune 411 008. [Telephone : 58 234 (Off.), 53 233 (Res.)].
- 1977 JAIN, GIAN CHAND, D.I.I.Sc., Dr.Ing. (Specialization : Electronic & Electrical Materials). Mem. I.E.E.E., Sigma, XI. Deputy-Director, and Head, Division of Materials, National Physical Laboratory, Hillside Road, New Delhi 110 012. B-3, Green Park Extn., New Delhi 110 016. [Telephone : 58 1455 (Off.), 66 7652 (Res.)].
- 1974 JAIN, HARI KRISHAN, Assoc. IARI, Ph.D. (Wales). (Specialization : Genetics & Plant Breeding). Director, Indian Agricultural Research Institute, New Delhi 110 012. B-8, IARI, New Delhi 110 012. [Telephone : 58 1493 (Off.), 58 3095 (Res.)]. 1979-
- 1977 JAIN, MAHINDER KUMAR, D.Phil., D.Sc. (IIT, Kharagpur). (Specialization : Differential Equations—Numerical Solution). Professor of Mathematics, Indian Institute of Technology, Hauz Khas, New Delhi 110 029. II/3, West Avenue, IIT Campus, New Delhi 110 029. [Telephone : 69 9163/249 (Off.), 69 9163/276 (Res.)].
- 1978 JAIN, PADAM CHAND, Ph.D. (Specialization : Numerical Applied Mathematics). F.M.A.S. Senior Professor and Head, Department of Mathematics, Indian Institute of Technology, Bombay 400 076. B-66, IIT, Powai, Bombay 400 076. [Telephone : 58 1421 (Off.)].

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1979 JAIN, SURESH CHAND, M.Sc., Ph.D. (Specialization : Solid State Electronics). F.Am. Phy. Soc., F. Inst. Phys. (Lond.), M.I.E.E.E. (USA). Director, Solid State Physics Laboratory (Ministry of Defence), Lucknow Road, Delhi-110 007. <i>T-10, Probyn Road, Delhi 110 007.</i> [Telephones : 22 2426 (Off.), 22 9247 (Res.)].	
1957 JANAKIAMMAL, EDAVALETH KAKKAT, M.A., M.Sc., LL.D. (Mich.), D.Sc. (Specialization : Cytogenetics & Plant Geography). F.A.Sc., F.B.S. Emeritus Professor, Centre of Advanced Studies in Botany, University Botanical Laboratory, University of Madras, Madras 600 005. <i>Field Research Laboratory, University of Madras, Madura Vayal P.O., Madras 602 102.</i> [Telephone : 42 1656].	
1979 JHA, SUDHANSU S. Professor of Theoretical Physics, Tata Institute of Fundamental Research, Homi Bhabha Road, Bombay 400 005 [Telephone : 21911/222 (Off.), 219 114/383 (Res.)].	
1950 JOB, THITAPILLY JOSEPH, D.Sc. (Specialization : Fisheries Biology & Development). F.Z.S.I., F.A.S., F.A.Z., F.I.A.F.S. Formerly Regional Fisheries Adviser for the Near East, FAO of United Nations. <i>21/2 Mahatma Gandhi Road, Bangalore 560 001</i> [Telephone : 53 259].	
1956 JOHRI, BRIJ MOHAN, D.Sc. (Specialization : Developmental & Experimental Embryology). Hon. Professor of Botany, University of Delhi, Delhi 110 007. Formerly: Head, Department of Botany, Director, Centre of Advanced Study in Botany & Dean, Faculty of Science. <i>D-121, Ashok Vihar, Delhi 110 052.</i> [Telephone : 22 8996, 22 1421/323 (Off.), 74 1470 (Res.)].	
1962 †JOSHI, ATMARAM BHAIKARAV, M. Sc., Assoc. I.A.R.I., Sec. Ph.D. (Cantab.), (Specialization : Agricultural Education & Research). F.B.S. Vice-Chancellor, Mahatma Phule Krishi Vidyapeeth, Rahuri 413 722, Distt, Ahmednagar, Maharashtra. Formerly Director, Indian Agricultural Research Institute, Pusa, New Delhi 110 012. [Telephone : 63 (Off.), 67 (Res.)].	1973-76

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<i>Date of Election</i>	<i>Service on Council</i>
1976 JOSHI, BALAWANT SHANKAR, Ph.D. (Tech.) (Bom.), Ph.D. (Cantab.). (Specialization : Organic Chemistry). F.A.Sc. Senior Scientist, Natural Products Group, CIBA-GEIGY Research Centre, Goregaon East, Bombay 400 063. <i>E 407, CIBA-GEIGY Research Centre, Goregaon East, Bombay 400 063. NB. [Telephone: 693221 (Off.), 69 3222 (Res.)].</i>	
1974 †JOSHI, SHRI KRISHNA, Ph.D. (Specialization : Solid State Physics). F.A.Sc. Professor, Department of Physics, University of Roorkee, Roorke 247 672. 145 <i>Vikash Nagar, Roorkee 247672. [Telephone: 743 (Off.)].</i>	
1945 †JOSHI, SHRIDHAR SARVOTTAM, D.Sc. (Lond.) (Specification: Light Effects & Colloids). F.A.Sc. Formerly Principal, College of Science, and Professor & Head of the Department of Chemistry, Banaras Hindu University. 1232 <i>Shivaji Nagar Pune 411 004.</i>	1950-51, 1953-55, 1960-62 V.P. 1963-64
1946 †KADAM, BABURAO SHANKARRAO, M.Sc., Ph.D. (Cornell). (Specialization: Genetics & Plant Breeding). Mem. Ind. Soc. Gen. Pl. Brdg. Emeritus Professor, Maharashtra Krishi Vidyapeeth. 'Malini' 12 <i>Shivaji Housing Society, Pune 411 016. [Tele- phone : 55 773 (Res.)].</i>	1961-63
1977 KAILASAM, LAKSHMINARAYANAPURAM NARAYANAN, M.Sc., M.S. (St. Louis). (Specialization: Geophysical Exploration & Geodynamics). Chief Geophysicist, Geological Survey of India. Apeejay House, 15 Park Street Calcutta 700 016. <i>Flat 17, Central Government Officers' Quarters, Belvedere, Alipore Calcutta 700 027. [Telephone: 24 5602, 24 5797 (Off.), 45 1199 (Res.)].</i>	
1979 KALLIANPUR, G. Director, Indian Statistical Institute, 203, B.T. Road, Calcutta.	
1975 †KANUNGO, MADHUSUDAN, M.Sc., Ph.D. (Illino is). (Specialization: Biochemistry, Cell Physiology). F.A.Sc. Professor, Department of Zoology, Banaras Hindu University, Varanasi 221 005. <i>New G/1, Jodhpur Colony, Banaras Hindu University, Varanasi. [Telephone: 54 291/354 (Off.), 66 284 (Res.)].</i>	

<i>Date of Election</i>	<i>Service on Council</i>
1975 †KANWAR, JASWANT SINGH, M.Sc. (Agri.), Ph.D. (Soils) (Australia). (Specialization: Soil, Agronomy & Agriculture). Fellow : Ind. Soc. Soil. Sci., Sigma XI (USA), Associate Director, International Crops Research Institute for the Semi-Arid Tropics, 1-11-256, Begumpet, Hyderabad 500 016. Formerly Dy. Director-General, ICAR. 'Hasan Vila', 8-2-595/2, Banjara Hills, Road 10, Hyderabad 500 034. [Telephone : 72 091 (Off.), 33 032 (Res)].	1978-
1969 KAPUR, JAGAT NARAIN, M.A., Ph.D. (Specialization : Biomathematics, Applied Mathematics). F.N.A.Sc., F.A.Sc., F.I.M.A. (UK). Professor of Mathematics, Indian Institute of Technology, Kanpur 208 016. 609 IIT Campus, Kanpur 208 016. [Telephone: 4006, (Off.) 40 06/295 (Res.)].	1973-75
1964 †KASLIWAL, RAJ MAL, M.D., D.T.M. & H. (Specialization: Medicine & Gastro-enterology). F.R.C.P. (Lond.), F.A.M.S., F.C.C.P., F.I.C.A. (USA), F.I.A.P. (USA), F.I.I.C.S. (Lond.), F.I.C.A.I., M.I.S.I.M. (Switzerland). Emeritus Professor in Medicine, S.M.S. Medical College, Jaipur. 'Kasliwal House', Chittaranjan Marg, 'C' Scheme, Jaipur 302 001. [Telephone: 73 020, 74 231/59 (Off.), 72 213 (Res.)].	
1979 KASTURI, T. R., Professor and Chairman, Department of Science, Bangalore.	
1977 KESSAR, SATINDER VIR, M.Sc. (Hons.), Ph.D. (S. Calif.). (Specialization: Synthetic & Mechanistic Organic Chemistry). F.A.Sc. Professor in Organic Chemistry, Department of Chemistry, Panjab University, Chandigarh 160 014. F8, Sector 14, Chandigarh 160 014. [Telephone: 25 035 (Off.), 20 729 (Res.)].	
1979 KHAN, ABRAR MUSTAFA, Ph.D. (Minnesota, USA) (Specialization : Plant Pathology, Nematology & Mycology) F.B.S., F.P.S.I. Professor of Botany, Department of Botany, Aligarh Muslim University, Aligarh 202 001 [Telephone : 3 942 (Off.) 4 077 (Res.)].	

*Date of  
Election**Service on  
Council*

- 1977 KHOSHOO, TRILOKI NATH, M.Sc. (Hons.), Ph.D. (Specialization: Genetics, Plant Breeding & Evolution). F.A.Sc. Director, National Botanical Research Institute, Lucknow 226 001. C/851, Sector C, Mahanagar, Lucknow 226 006. [Telephone: 46 069 (Off.), 81 589 (Res.)].
- 1951 †KHOSLA, AJUDHIA NATH, B.A. (Hons.), C.E. Dr. Pres. Eng. (Hon.). R.P.I. (USA), D.Sc. (Engg.) (h.c., Roorkee et Panjab and Sambalpur). (Specialization: Engineering). Hon. Life Member, Institution of Engineers (India), Life Member, American Society of Civil Engineers. I.S.E. (retired). 15 Jangpura 'B', Mathura Road, New Delhi 110 014. [Telephone: 69 7168].  
(Medal : Shanti Swarup Bhatnagar Medal, 1974).
- 1978 KHUSH, GURDEV SINGH, Ph.D. (Specialization: Plant Breeding & Genetics). Plant Breeder and Head, Plant Breeding Department, International Rice Research Institute, P.O.Box 933, Manila, Philippines. [Telephone: 88-48-69 (Off.)].
- 1935 \*KICHLU, PRATAP KISHAN, D.Sc. (Specialization : Spectroscopy & Optical Technology). Formerly Director, National Physical Laboratory, New Delhi. 14-B Road, Maharani Bagh, New Delhi 110 014. [Telephone : 63 0218]. 1957-59, 1969-71 V.P. 1967-68
- 1954 KILPADY, SHRIPADRAO, M.Sc. (Specialization : Mineralogy & Micropalaeontology). F.G.S. (Lond.) F.A.Sc. Formerly Professor of Geology, Nagpur University. 'Prasad', Shreya Apartments, 52/I-B Erandavana, Pune 411 004. [Telephone : 53 042]. 1961-63
- 1974 †KOTESWARAM, PANCHETI, D.Sc., D.Sc. (h.c., Andhra). (Specialization : Meteorology & Atmospheric Physics). F.I.A.Sc., F.A.P.A.Sc. Formerly Director-General of Observatories, New Delhi. 11-2-8, Wilderness Drive, Waltair 530 003. [Telephone : 4359 (Res.)].

Date of Election	Service on Council
1936 †KOTHARI, DAULAT SINGH, M.Sc., Ph.D., D.Sc. ( <i>h.c.</i> ). Foreign Member, USSR Academy of Sciences. Emeritus Professor of Physics, University of Delhi, Delhi 110 007. A-3, 29/31, Chhatra Marg, Delhi University Campus, Delhi 110 007. [Telephone : 22 4333]. (Medal : Shanti Swarup Bhatnagar Medal, 1966; Meghnad Saha Medal, 1978)	1942-44, 52, 59-60, 63-65 F. Sec. 1945 Sec. 1946-51 Treas. 1953-56 V.P. 1957-58 Ed. Pub. 61-Apr. 62 Ad. V.P. 1963 Pres. 1973-74 Ad. Mem. 1975-76
1966 †KOTHARI, LAXMAN SINGH, M.Sc., Ph.D. (Specialization : Neutron Physics). F. Inst. P. (London), Mem. Am. Nucl. Soc. Professor, Department of Physics & Astrophysics, University of Delhi, Delhi 110 007. A-3, 29/31 Chhatra Marg, Delhi 110 007. [Telephone : 22 8962 ( <i>Off.</i> ), 22 4333 ( <i>Res.</i> )].	Ed. Pub. 1975-78
1966 KRISHNA, JAI, Ph.D. (Lond.), D.Sc. (Specialization : Earthquake Engineering). F.I.E. Professor Emeritus. Formerly Vice-Chancellor, University of Roorkee, Roorkee. 61, Civil Lines, Roorkee 247 667. [Telephone : 338 ( <i>Res.</i> )].	Ed. Pub. 1975-78
1935* †KRISHNA, SRI, C.I.E., Ph.D. (Lond.), D.Sc. (Lond.). (Specialization : Biochemistry & Plant Products). F.R.I.C. Formerly Scientific Adviser to the Indian High Commission in UK. 62 Perryn Road, Acton, London, W. 3, 7 Lx (UK). [Telephone : 01-743. 6673].	1948-50 Govt. Rep. 1953
1971 KRISHNAMURTI, COIMBATORE RAMDORAI, B.Sc. (Hons.), Ph.D. (Specialization : Biochemistry, Enzymology & Metabolism). F.A.Sc. Director, Industrial Toxicology Research Centre, Post Box No. 80, Mahatma Gandhi Marg, Lucknow 226 001. C4/4 Havelock Road Colony, Lucknow 226 001. [Telephone : 45942 ( <i>Off.</i> ), 44874 ( <i>Res.</i> )].	1978-

*Date of  
Election**Service on  
Council*

- 1969 KRISHNAN, PADMANABHAN SUBBARAO, M.A., M.Sc., Ph.D., F.R.I.C. Emeritus Professor, Department of Botany, Calicut University, Calicut 673 635, Kerala.
- 1950 †KRISHNAN, RAPPAL SANGAMESWARA, D.Sc., Ph.D. (Cantab.). (Specialization : Raman Spectroscopy, Crystal/Nuclear Physics). F.Inst.P., F.A.Sc., F.Am.P.S. Retired Professor, Department of Physics, Indian Institute of Science, Bangalore 560 012. Formerly Vice-Chancellor, University of Kerala, Trivandrum. 232, 18th Cross, Palace Upper Orchards, Sadasiva Nagar, Bangalore 560 006. [Telephone : 34 411/315 (Off.), 30 703 (Res.)]. Ad. Mem. 1955-57
- 1969 KULKARNI, ANANT BALKRISHNA, M.Sc., D.Sc., (Zurich). (Specialization : Synthetic and Natural Products Chemistry). Head of the Department of Chemistry, University of Bombay (Univ. Campus), Kole Kalyan, CST Road (Manipada), Kalina Santa-cruz (East), Bombay 400 098. 12-A Soona Mahal, 143 Marine Drive, Bombay 400 020. [Telephone : 53 2241-45 (Off.), 29 5688 (Res.)].
- 1954 KUMAR, LADAPURAM SRINIVASA SAMPATH, M.Sc. (Lond.), A.R.C.S., (Lond.), D.I.C. (Lond.). (Specialization : Cytology, Genetics & Plant Breeding). F.A.Sc. Formerly Principal, College of Agriculture, Pune. C/o Lt. Col. B. S. Ramdas, 18, The Mall, Delhi Cantonment 110 010. [Telephone : 50 847]. 1963-65
- 1945 ‡KUNDU, BALAI CHAND, Ph.D. (Leeds) (Specialization : Plant Breeding, Anatomy & Taxonomy). F.L.S., F.A.S., F.B.S. Emeritus Research Professor, Botanical Survey of India, 1 Sudder Street, Calcutta 700 013. Research Director, Asiatic Society, and former Director, Jute Agricultural Research Institute. 332 Lake Town, Calcutta 700 055. [Telephone : 23 3579 (Off.), 574 399 (Res.)]. 1960-62  
Ad. Mem. 1958-59
- 1961 KUNDU, DHIRENDRA NATH, M.Sc., Ph.D. (Ohio). (Specialization : Nuclear Physics). Director, Saha Institute of Nuclear Physics, 92 Acharya Prafulla Chandra Road, Calcutta 700 009. P/66, CIT Scheme, VI-M, Calcutta 700 054. [Telephone : 35 4281 (Off.), 35 8430 (Res.)].

*Date of  
Election**Service on  
Council*

- 1974 KUSHWAHA, RAM SINGH, M.Sc., D.Phil. (All'd), Ph.D. (Princeton). (Specialization : Applied Mathematics & Astrophysics). F.N.A.Sc., F.A.S.I., F.R.A.S. (Canada), M.I.A.U. Professor & Head, Department of Mathematics and Statistics, Faculty of Science, University of Jodhpur, Jodhpur. 128-D, *Shastrinagar, Jodhpur* 342 001. [Telephone : 23 314 (Off.), 20 735 (Res.)].
- 1979 LAKHANPAL, RAJENDRA NATH, M.Sc., Ph.D. (Specialization : Palaeobotany, Palaeoecology, Palynology). F.B.S., F.Pb.S.; F.N.A.Sc.; F.A.Sc. Deputy Director, Birbal Sahni Institute of Palaeobotany, Lucknow 226 007. B-21, Sector A, *Mahanagar, Lucknow* 226 006. [Telephone : 32502 (Off.), 81168 (Res.)].
- 1958 LAHIRI, DEBA BRATA, M.Sc. (Specialization : Number Theory & Survey Sampling). Formerly Director, Research & Training School, Indian Statistical Institute, Calcutta. 4 *Anantaratam Haridas Road, Belghoria, Calcutta* 700 056.
- 1972 †LAL, DEVENDRA, M.Sc., Ph.D. (Bombay). (Specialization : Nuclear Processes). F.A.Sc., F.M.Soc. For. Assoc., Nat. Acad. Sci. (USA). Director, Physical Research Laboratory, Navrangpura, Ahmedabad 380 009. No. 1, *Principals' Bungalows, Ahmedabad Education Society, Navrangpura, Ahmedabad* 380 009. [Telephone : 40 242 (Off.), 41 451 (Res.)]. 1974-76
- 1951 †LAL, KRISHNA BEHARI, M.Sc., Ph.D. (Edin.). (Specialization : Agricultural Zoology & Plant Protection). Formerly Regional Plant Protection Specialist for the Near East, F.A.O. of the United Nations, Cairo; Plant Protection Adviser to the Government of India, New Delhi. 'Chandra Bhawan', Civil Lines, Azamgarh, U.P. 276 001.
- 1962 LAL, MAKUND BEHARI, D.Sc. (Luck. & Edin.). (Specialization : Parasitology & Experimental Zoology). F.A.Sc. Director, Dayalbagh Educational Institute. Ex-Vice-Chancellor, Lucknow University. 4/99 *Vidyutnagar, P.O. Dayalbagh, Agra* 282 005. [Telephone : 72 593 (Off.)].

*Date of  
Election**Service on  
Council*

- 1936 †LAW, SATYA CHURN, M.A., B.L., Ph.D. F.Z.S., M.B.O.U. 50 Kailas Bose Street, Calcutta 700 006. [Telephone : 35 1457].
- 1977 LUTHRA, USHA KEHAR, (Mrs), M.D. (Path. & Bac.), Ph.D. (Path.). (Specialization : Pathology, Cancer Research, Medical Research). F.R.C. (Path.) (Lond.), F.I.A.C. (Canada), F.A.M.S. Deputy Director-General (Technical-Clinical Research), Indian Council of Medical Research, Ansari Nagar, New Delhi 110 016. C-II/1201, Moti Bagh, New Delhi 110 021. [Telephone : 660 286 (Off.), 675 303 (Res.)].
- 1940 †MADHAVA, KRISHNA BINDU, M.A., A.I.A. (Specialization : Mathematics & Statistics). F.A.Sc., F.I.S.I., Fellow, Int.Stat.Inst. Formerly Professor of Statistics and Mathematical Economics, Mysore University. 129 Lloyds Road, Madras 600 086. [Telephone : 85 651].
- 1953 MADHAVARAO, BANGALORE SRINIVASARAO, D.Sc. (Specialization : Elementary Particle Physics). F.A.Sc., Associate, Centre for Theoretical Studies, Indian Institute of Science, Bangalore 560 012. 4 Kankanhali Road, Basavangudi P.O., Bangalore 560 004. [Telephone : 30 011].
- 1949 †MAHABALE, TRYAMBAK SHANKAR, B.A., M.Sc., 1965-67 Ph.D. (Specialization: Cryptogamic, Economic Botany & Palaeobotany). F.A.Sc., F.N.A.Sc., F.B.S. Professor & Head of the Department of Botany, Maharashtra Association for the Cultivation of Science — Research Institute, Law College Road, Deccan Gymkhana, Pune 411 004. Bungalow No. 26, S—No. 132/3, Aundh, Pune 411 007. [Telephone : 56 357 (Off.), 52 513 (Res.)].
- 1935\* †MAHAJANI, GANESH SAKHARAM, M.A., Ph.D. (Specialization : Theoretical & Applied Mechanics). Formerly Vice-Chancellor in Jaipur, Delhi, Udaipur and Poona Universities. Sambhram, 864 Shivaji Nagar, Pune 411 004. [Telephone: 54 285].
- 1978 MAHESHWARI, SATISH CHANDRA, Ph. D. (Specialization: Plant Growth & Development). F.A.Sc., F.I.S.P.M., F.I.S.P.P., F.I.B.S. Professor and Head, Department of Botany, University of Delhi, Delhi 110 007. 7, University Road, Delhi 110 007. [Telephone: 22 8996 (Off.) 22 4829 (Res.)].

<i>Date of Election</i>	<i>Service on Council</i>
1941 †MAJUMDAR, RAMESH CHANDRA, Dr. Phil. (Specialization: Theoretical Physics). Nat. Emeritus Professor, Department of Physics and Astrophysics, University of Delhi, Delhi 110 007. 266 Tagore Park, Delhi 110 009. [Telephone: 22 8949].	1950-51 Sec. 1952-56, 1961-64 Ed. Pub. 1957-60 Treas. 1965-68
1946 ‡MALHOTRA, DES RAJ, S.B. (Harvard), D.Sc. (Specialization: Metallurgical Engineering). F.I.Chem. E., F.I.M. (Lond.), F.I.E., F.A.Sc. Formerly Industrial Adviser to the Government of India, and Technical Manager & Chief Engineer, Sepulchre Bros. (India) Pvt. Ltd. 'White House', Golf Road, Ajmer 305 001. [Telephone : 20 239].	1954-55
1956 MALURKAR, SREENIVAS LAKSHMINARASIMHA, M.Sc. (Cantab.). (Specialization: Mathematical Physics, Meteorology & Geophysics). Bharani, 2/2 Edward Road, Bangalore 560 052.	
1977 †MANI, ANNA, B.Sc. (Hons.), A.I.I Sc. (Specialization: Atmospheric Physics, Instrumentation). F.A.Sc. Visiting Professor, Raman Research Institute, Hebbal, Bangalore 560 006. Panchavati, 15th Cross, 8th Main Road, Bangalore 560 003. [Telephone : 30 122 (Off.), 31 268 (Res.)].	
1976 †MANNA, GOBINDA KISHOR, M.Sc., D.Phil., D.Sc. (Specialization: Animal Cytogenetics). P.R.S. (cal.), F.A.Sc. F N.A.Sc. Professor & National fellow Department of Zoology, Kalyani University, Kalyani, West Bengal. P10/250, Kalyani, P.O. Kalyani, 741 235, West Bengal. [Telephone : 220 (Off.)].	
1974 MATHUR, HIRDAYA BEHARI, Ph.D. (Calif.). (Specialization: Material Science). F.A.Sc. Director, Defence Materials and Stores Research & Development Establishment, P.B. 320, Kanpur 208 013. 14/116-D, Civil Lines, Kanpur 208 001. [Telephone; 64 514 & 65 250 (Off.), 53 000 (Res.)].	

*Date of  
Election**Service on  
Council*

- 1963 MATHUR, KRISHNA SARAN, D. M. (Specialization: Cardiology). F.R.C.P., F.A.C.C., F.A.M.S. Formerly Professor and Head, Post-graduate Department of Medicine, Sarojini Naidu Medical College, Agra and Dean, Faculty of Medicine, Agra University. 24 Professors' Colony, Agra 282 002. [Telephone : 72 231].
- 1952 MEHRA, PRAN NATH, D.Sc. (Specialization: Morphogenesis and Tissue Culture, Cytogenetics and Morphology). F.N.A.Sc., F.B.S. Formerly Senior Professor & Head of the Department of Botany, Panjab University, Chandigarh 160 014. Bungalow No. 1055, Sector 27-B, Chandigarh 160 027. [Telephone: 25 026 (Off.), 26 791 (Res.)]. 1969-70
- 1958 MEHRA, SITA RAM, C.E. (Specialization: Soil Stabilization, Highways) F.I.C.E. (UK), F.I.E. Formerly Director, Central Road Research Institute, New Delhi 110 014. B-317, New Friends Colony, New Delhi 110 014. [Telephone: 63 1580].
- 1964 MEHROTRA, RAM CHARAN, D.Phil., Ph.D. D.Sc. 1979-  
(Lond.). (Specialization: Inorganic, Organometallic Chemistry). F.N.A.Sc., F.A.Sc. Vice-Chancellor, University of Delhi, Delhi 110 007. 32, Chhatra Marg, Dehli 110 007. [Telephone: 22 4497 (Off.), 22 7646 (Res.)]. V.P. 1977-78  
(Medal: Professor T. R. Seshadri Seventieth Birthday Commemoration Medal, 1976)
- 1970 MENON, MAMBILIKALATHIL GOVIND KUMAR, Ph.D. 1972-74  
(Bristol), D.Sc. (h.c. Jodhpur, Delhi, Sardar Patel and Allahabad Universities). (Specialization: Physics). F.A.Sc., F.R.S. Chairman, Electronics Commission and Secretary to the Government of India, Department of Electronics, Vigyan Bhavan Annex, Maulana Azad Road, New Delhi 110 011. 81, Lodi Estate, New Delhi 110 003. [Telephone: 38 1310 (Off.), 61 1533 (Res.)].

<i>Date of Election</i>	<i>Service on Council</i>
1967 MENON, PULIAKOTE KESAVA, M.A., M.Sc., D.Sc. (Specialization: Combinatorial Mathematics and Algebra). F.A.Sc. Visiting Professor of Mathematics, Indian Statistical Institute. Director, Joint Cipher Bureau, Ministry of Defence, D1 Block (1st Floor), Sena Bhavan, DHQ P.O., New Delhi 110 011. <i>A-2 Press Enclave, Malaviya Nagar Extension, New Delhi 110 017.</i> [Telephone : 37 3328 (Off.)].	
1960 MISHRA, RATAN SHANKER, Ph.D., D.Sc. (Specialization: Differential Geometry, Relativity and Fluid Mechanics). F.N.A.Sc., F.A.Sc. Head of the Department of Mathematics, Banaras Hindu University, Varanasi 221 005. <i>Old D/8, Banaras Hindu University, Varanasi 221 005.</i> [Telephone: 54 290-54 299/334 (Off.), 54 290-54 299/311 (Res.)].	Ad. Mem. 1968-72
1955 †MISRA, RAMDEO, Ph.D. (Specialization: Ecology). F.N.A.Sc., F.W.A. Visiting Professor of Environmental Biology, A. P. S. University, Rewa 486 003 (M.P.). Formerly Professor & Head of the Department of Botany, Banaras Hindu University, Varanasi 221 005. <i>Univ. Campus, A. P. S. University, Rewa 486003.</i>	
1970 MISRA, RAMESH CHANDRA, M.Sc., Ph.D. (Specialization: Economic Geology & Petrology). F.G.M.S., M.M.G.I., F.N.A.Sc., F.P.S. Formerly Professor & Head of the Department of Geology, Lucknow University. <i>Ramkrishna Marg, Faizabad Road, Lucknow 226 007.</i> [Telephone: 81 924 (Res.)].	
1966 †MITRA, ASOKE NATH (Specialization: Particles and Fields). Professor of Physics, University of Delhi, Delhi 110 007. <i>244 Tagore Park, Delhi 110 009.</i> [Telephone: 22 9552 (Off.), 22 9890 (Res.)].	Sec. 1975-78
1961 †MITRA, ASHESH PROSAD, M.Sc., D.Phil. (Specialization: Radio and Space Physics). F.A.Sc., Mem. Int. Acad. Astron., Mem. Am. Geoph. Union. Scientist & Head, Radio Science Division, National Physical Laboratory, Hillside Road, New Delhi 110 012. <i>4/6 MS Bldg., N.P.L. Qrs., New Delhi 110 060.</i> [Telephone: 58 5298 (Off.) 58 4213 (Res.)]. <b>(Lecture: Kariamanikkam Srinivasa Krishan Memorial Lecture, 1975)</b>	Sec. 1979-

*Date of  
Election**Service on  
Council*

- 1949 †MITRA, HIMANSU KUMAR, M.Sc., Ph.D. (Pittsburgh). 1973-75  
 (Specialization: Refractory Technology). M. N. Inst. Ceram. Eng. (USA). Refractories, Ceramic and Furnace Consultant. Formerly Chief Refractories Engineer, Tata Iron & Steel Co., Jamshedpur. P16 / 1B Keyatala Lane, Calcutta 700 029. [Telephone: 46 4724].
- 1953 †MITRA, RAM PRASAD, D.Sc. (Specialization: Physical Chemistry). N-33 Bengali Quarters, Somai Bagh, Agra 282 005. 1960-61
- 1961 MITRA, SUKHENDRA NATH, M.Sc. (Cal et. Cantab.). (Specialization: Electronics and Telecommunications Engineering). F.I.E.T.E., F.R.A.S., F.A.F.Sc. Chief Engineer, All-India Radio, 'Akashvani Bhavan', Parliament Street, New Delhi 110 001. 2/14 Shanti Niketan, New Delhi 110 021. [ Telephone: 38 2236 & 38 2021/329 (Off.), 67 0400(Res.)].
- 1978 MOHAN RAM, HOLENARASIPUR YOGANARASIMHAM, Ed. Pub. Ph.D. (Specialization: Plant Growth & Development). 1979- Professor of Botany, University of Delhi, Delhi 110 007. 38/4 Probyn Road, Delhi 110 007. [Telephone: 22 1421/323 (Off.)].
- 1971 MUKERJEE, SIVATOSH, M.Sc., Ph.D. (Edin.) (Specialization: Developmental Biology). Dean, School of Life Sciences, Jawahar Lal Nehru University, New Mehrauli Road, New Delhi 110 057. House No. 2, Dakshinapuram, JNU New Campus, New Mehrauli Road, New Delhi 110 057. [Telephone: 65 2282/246 (Off.), 65 2166/323 (Res.)].
- 1979 MOUDGAL, N. RAGHUVeer, M.Sc., Ph.D. (Specialization : Endocrine Biochemistry ; Reproductive Biology). Member : Endocrine Society, U.S.A.; Society of Biological Chemists (India), F.A.Sc. Professor of Biochemistry, Indian Institute of Science, Bangalore 560 012. 'Priya', 730, 10th Cross Road, WCR Extension, Stage II, Rajajinagar, Bangalore 560 010. (Telephone : 34 411/308 (Off.); 82 117 (Res.).

<i>Date of Election</i>	<i>Service on Council</i>
1968 MUKERJEE, SACHIMOHAN, M.B., D.Phil., D.Sc. (Specialization: Microbiology, Immunology & Epidemiology). 29 Ponchanon Tola Lane, Calcutta 700 034.	
1943 †MUKERJI, BISHNUPADA, D.Sc. M.B., M.P.S. (Specialization: Pharmacology, Physiology, Human Biochemistry). F.A.Ph.S., F.A.M.S. F.S.M.F.B., F.I.C., F.A.S., F.A.A.A.S., F.A.B.D.P. Ex-Director, Chittaranjan National Cancer Research Centre. 54 Gopimohan Datta Lane, Calcutta 700 003. [Telephone: 55 2882].	1947, 50-51 Ad. Mem. 48-49, 52-53, 1956, 61-63, 1964-65, 1974-75 V.P. 1954-55 F.Sec. 1957-60, 1967-68 Ad. V.P. 1962
	(Medal: Shree Dhanwantari Medal, 1976)
1935* ‡MUKHERJEE, JNANENDRA NATH, C.B.E., D.Sc. (Specialization: Electro-chemistry of Colloids). F.C.S. F.A.S., F.I.A.C.S., F.I.C.S. Formerly Director (Foundation), Central Building Research Institute, Rookee. 10 Puran Chand Nahar Avenue, Calcutta 700 013. [Telephone: 24 3845].	1935-38 Ad. V.P. 1939-40, 1952 V.P. 1941-42 F.Sec. 1943-44, 1947-51, Ed. Pub. 1945-46
1977 MUKHERJEE, SUSHIL KUMAR, M.Sc., D.Sc. (Specialization: Soil Science). Vice-Chancellor, Calcutta University, Senate House, Calcutta 700 073. 332 Jodhpur Park, Flat No, 9, Jodhpur Court, Calcutta 700 068. [Telephone: 34 3467 (Off.), 46 2133 (Res.)].	
1959 MUKHERJI, SAILENDRA MOHAN, D.Sc. (Specialization: Organic Chemistry). Professor & Head of the Department of Chemistry, Kurukshetra University, Kurukshetra 132 119. F/4 University Campus, Kurukshetra 132 119. [Telephone: 42 (Off.)].	

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Election**Service on  
Council*

- 1974 MURTY, BHYRAVABHOTLA RADHAKRISHNA, ASSOC. I.A.R.I., Ph.D. (Cornell). (Specialization: Biometrical & Radiation Genetics, Plant Breeding). F.R.S.S., F.A.Sc. Project Director (NRL) & International Coordinator for Biology of Adaptation, Indian Agricultural Research Institute, New Delhi 110 012. C-37 IARI, New Delhi 110 012. [Telephone: 58 4454 (Off.), 58 5080 (Res.)].
- 1978 NAG, BISWARANJAN, Ph.D., D.Sc. (Specialization: Solid State Electronics). Professor, Centre of Advanced Study in Radio Physics & Electronics, 92 Acharya Prafulla Chandra Road, Calcutta 700 009. P-10 C.I.T. Road, Calcutta 700 014. [Telephone: 35 9115 (Off.), 24 1935 (Res.)].
- 1977 NAGARAJAN, KUPPUSWAMY, B.Sc. (Hons.), Ph.D. (Specialization: Organic, Medicinal Chemistry). F.A.Sc., M.I.C.S., M.I.P.A. M.C.S. (Lond.), M.S.C.S. Manager CIBA-GEIGY Research Centre, Goregaon East, Bombay 400 063. 406E, CIBA-GEIGY Research Centre, Goregaon East, Bombay 400 063. [Telephone: 69 3222 (Off. & Res.)].
- 1964 †NAG CHAUDHURI, BASANTI DULAL, M.Sc., Ph.D. (Calif.). Formerly Vice-Chancellor, Jawahar Lal Nehru University, New Mehrauli Road, New Delhi 110 057. 8 Tughlak Road, New Delhi 110 011. [Telephone: 65 1510 (Off.), 37 2652 (Res.)]. Sec. 1969-70  
V.P. 1971-72  
F.Sec. 1973-76  
Ad. Mem. 1978
- 1959 NAGENDRA NATH, NAGESH SUBBARAO, M.Sc. (Mysore), Ph.D. (Cantab.). (Specialization: Mathematical/Theoretical Physics). F A.Sc. Formerly University Professor of Mathematics, Patna University. 'Parimala', 1553, II Stage, Rajajinagar, Bangalore 560 010.
- 1977 †NAHA, KSHITINDRAMOHAN, D.Sc. (Specialization: Structural and Metamorphic Geology; Precambrian Geology). Professor of Geology, Department of Geology and Geophysics, Indian Institute of Technology, Kharagpur 721302, W. Bengal. 'Prantik', P.O. Hijli Cooperative, via Kharagpur 721 301. [Telephone: Kharagpur 221 to 224 (Off.)].

<i>Date of Election</i>	<i>Service on Council</i>
1957 †NAIR, KESHAVAN RAGHAVAN, Ph.D., (Lond.), D.Sc. (Lond.). (Specialization : Statistical Methods). Formerly Director, Central Statistical Organization, New Delhi, and Director, United Nations Asian Statistical Institute, Tokyo. 318/A, Block 8, Jayanagar, Bangalore 560 041. [Telephone : 41 814].	1966-68
1975 NAIR, NARAYANA BALAKRISHNAN, B.Sc. (Hons.) (Caithness Gold Medallist), M.A., Ph.D., D.Sc. (Specialization : Marine Biology, Ecology, Fisheries), F.Z.S. (Lond.) F.A.Sc., F.Z.S.I., U.G.C. National Fellow. Professor of Marine Biology and Fisheries, University of Kerala, Beach P.O., Trivandrum 695 007; Secretary, State Committee on Science and Technology, Govt. of Kerala. 'Swathi', Residency Road, Thycaud, Trivandrum 695 014. [Telephone : 2284 (Off.), 63 746 (Res.)].	1978-
1945 ‡NAIR, UNNINAYAR SIVARAMAN, M.A., Ph.D. (Lond.), (Specialization : Theoretical Statistics). 'Jacinth', Kawdiar, Trivandrum 695 003. [Telephone : 60 908].	
1973 NANDA, KRISHNA KUMAR, M.Sc., Ph.D. (Specialization : Plant Physiology) F.A.Sc., Professor of Plant Physiology, Department of Botany, Panjab University, Chandigarh 160 014. F/9, Sector 14, University Campus, Panjab University, Chandigarh 160 014. [Telephone : 24 323 (Off.)].	
1959 NANJUNDAYYA, CHANDRASEKHAR, M.Sc., Ph.D. (Manchester), F.T.I. (Specialization : Applied Physics—Technology & Statistics). Formerly : Director, Cotton Technological Research Laboratory, ICAR, Bombay; Director, Bombay Textile Research Association, Bombay; and Project Manager, UNIDO, Alexandria, Egypt. 128/3 'Shri Niwas', 5th Road, Hindu Colony, Dadar, Bombay 400 014. [Telephone : 44 9057].	
1978 NARAIN, PREM, M.Sc., Ph.D. (Edin.). (Specialization : Statistical Genetics and Agricultural Statistics). F.R.S.S. Joint Director, Indian Agricultural Statistics Research Institute, Library Avenue, New Delhi 110 012. Warden's Bungalow, Library Avenue, New Delhi 110 012, [Telephone : 58 1475 (Off.), 58 1088 (Res.)].	

- 1979 NARASIMHA, RODDAM, Ph.D. (Specialization : Fluid Mechanics, Aeronautics). F.A.Sc., M.Ae.S.I. Professor, Department of Aeronautical Engineering, Indian Institute of Science, Bangalore 560 012. *Bungalow 11, Indian Institute of Science, Bangalore 560 012.* [Telephone : 34411 Ext. 423/422 (Off.); 32705 (Res.)].
- 1971 †NARASIMHAM, NISHTALA APPALA, M.Sc., Ph.D. (Specialization : Atomic & Molecular Physics, Spectroscopy and Astrophysics). F.A.Sc. Head, Spectroscopy Division, Bhabha Atomic Research Centre, Trombay, Bombay 400 085. 18, *Saras Baug, Deonar, Bombay 400 088* [Telephone : 52 6085 (Off.), 52 8204 (Res.)].
- 1971 NARASIMHAN, MUDUMBAI SESHACHALU, Ph.D. (Specialization : Analysis, Differential Geometry, Algebraic Geometry). F.A.Sc., Senior Professor, School of Mathematics, Tata Institute of Fundamental Research, Bombay 400 005. Flat 810, *TIFR Housing Colony, Homi Bhabha Road, Bombay 400 005.* [Telephone : 21 9111/245 (Off.), 21 2454 (Res.)]. 1977-
- 1972 NARASIMHAN, PALLIAKARANAI THIRUMALAI, M.Sc., Ph.D. (Specialization : Theoretical Chemistry & Magnetic Resonance). F.A.Sc., F.N.A.Sc. Professor of Chemistry, Indian Institute of Technology, Kanpur 208 016. 502, *IIT Campus, Kanpur 208 016.* [Telephone : 40 066/237 & 288 (Off.), 40 066/337 (Res.)].
- 1975 NARASIMHAN, RANGASWAMY, M.S., M.A., Ph.D. (Specialization: Computer Science). F.A.Sc., Senior Professor & Head, Computer Group, and Director, National Centre for Software Development & Computing Techniques, Tata Institute of Fundamental Research, Bombay 400 005. Flat 901, B1 Block, Colaba Housing Colony, TIFR, Homi Bhabha Road, Bombay 400 005. [Telephone: 21 9111 (Off.), 21 1881 (Res.)].
- 1958 †NARAYANAN, ENNAPADAM SUNDARA, Ph.D. (Lond.) (Specialization: Zoology, Entomology, Biological Control & Apiculture). D.I.C., E.E.S.I., F.R.E.S., F.A.Sc. *Sri Girija Shankar Niwas, B-122, Sarvodaya Enclave, Sri Aurobindo Marg, New Delhi 110 017.*

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- 1977 †NARLIKAR, JAYANT VISHNU, Sc.D. (Cantab.). (Specialization: Astrophysics and Cosmology). F.A.Sc., F.R.A.S., Professor, Tata Institute of Fundamental Research, Bombay 400 005. 701, *Colaba Housing Colony, Homi Bhabha Road, Bombay 400 005.* [Telephone: 21 9111 (Off.), 21 4677 (Res.)].
- 1939 †NARLIKAR, VISHNU VASUDEVA, M.A. (Cantab.). 1942-44 (Specialization: Relativity and Cosmology. F.R.A.S., F.A.Sc., F.N.A.Sc. Emeritus Professor of Mathematics, Banaras Hindu University and University of Poona. Flat 701, *Colaba Housing Colony, Homi Bhabha Road, Bombay 400 005.* [Telephone: 21 4677].
- 1978 NASIPURI, DHANONJAY, Ph.D. D.Sc. F.R.I.C., F.A.Sc. (Specialization: Synthetic Organic Chemistry). Professor and Head of Department of Chemistry, I.I.T. Kharagpur 721 302. A-37, *Kharagpur 721 302.* [Telephone 221-224 (Off.)].
- 1950 NATH, MADHAB CHANDRA, D.Sc. (Specialization: Carbohydrate, Lipid Metabolism). F.R.I.C., F.I.C. Formerly Professor & Head of the Department of Biochemistry, Nagpur University. 8 East High Court Road, New Ramdaspeth, Nagpur 440 010. [Telephone: 31 657].
- 1975 NAYUDAMMA, YELAVARTHY, M.Sc. (Lehigh), Ph.D. 1977- (Lehigh). (Specialization: Chemistry Leather Research). F.A.Sc., F.N.A.Sc., Distinguished Scientist, Central Leather Research Institute, Madras 600 020. 'Gregeste', C.L.R.I. Campus, Adyar Madras 600 020. [Telephone: 41 2505 (Off.), 41 3469 (Res.)].
- 1977 NIGAM, HIRA LAL, M.Sc., D.Phil., Ph.D. (Lond.). (Specialization: Inorganic Chemistry). F.N.A.Sc. Professor, Department of Chemistry, University of Allahabad, Allahabad 211 002. 10/1 Bank Road, Allahabad 211 002. [Telephone: 53 208 (Off.), 53 256 (Res.)].
- 1957 NIJHAWAN, BAL RAJ, Ph.D. (Specialization: Metallurgy & Applied Science). F.I.M. Senior Inter-Regional Adviser, UNIDO, 3 Theresianum Gasse, Vienna 4, Austria.

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1935* †NORMAND, SIR CHARLES, W. B., Kt., C.I.E., M.A., D.Sc. (Specialization: Meteorology). Hon. Fellow Roy. Met. Soc., Hon. Mem. Am. Met. Soc. Formerly D.G. Observatories, India. 23 St. Thomas Street, Winchester, England. [Telephone: 2550].	1935-40, 44 V.P.
1976 †NOTANI, NIHAI KISHINCHAND, M.Sc., Ph.D. (Specialization: Genetics). F.A.Sc. Head, Genetics & Molecular Biology Section, Bhabha Atomic Research Centre, Trombay, Bombay 400 085. 10B, Deptt. of Atomic Energy Apts., 317, Ridge Road, Bombay 400 006. [Telephone: 52 3321/345 (Off.), 81 4664 (Res.)].	1941-42
1972 PAINTAL, AUTAR SINGH, M.D., Ph.D., D.Sc. (Specialization: Neuro- and Cardiorespiratory Physiology). F.A.M.S., F.R.S.E. Director, V. P. Chest Institute, University of Delhi, Delhi 110 007. Director's Bungalow, V.P. Chest Institute, Univ. of Delhi, Delhi 110 007. [Telephone: 22 3846 (Off.), 22 8450 (Res.)].	1978-
1946 †PAL, BENJAMIN PEARY, M.Sc., Ph.D. (Cantab.), D.Sc. (h.c. Panjab, U.P. and Haryana Agricultural Universities and Sardar Patel University). (Specialization: Genetics & Plant Breeding). F.R.S., F.L.S., F.R.H.S., F.B.S., F.G.S., F.P.S.I., F.A.Sc., Mem. Japan Acad., Mem. Lenin All-Union Acad. Agri. Sci., Mem. Acad. d' Agriculture de France. Chairman, National Committee on Environmental Planning and Co-ordination New Delhi. P 11, Hauz Khas Enclave, New Delhi 110 016. [Telephone: 65 0632 (Off.), 66 0245 (Res.)]. <b>(Medal : Srinivasa Ramanujan Medal, 1964)</b>	1951, 57-58, 65-67, Ad. Mem. 1977-71 Treas. 1952 Sec. 1953-56 V.P. 1960-61, 1973-74 Ed. Pub. May-Dec. 1966 Pres. 1975-76
1956 PAL, RUDRENDRA KUMAR, M.Sc., M.B.B.S. (Cal.), D.Sc. (Edin). (Specialization : Endocrinology & Metabolic Diseases, Human Physiology and Nutrition). F.R.C.P., F.R.S.E., F.A.S. Formerly Vice-Principal and Professor of Physiology, R. G. Kar Medical College, Calcutta. 5/4, Ballygunge Place, Calcutta 700 019. [Telephone : 47 7706].	1964-66 Ad. Mem. 1962-63, 1972-73

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- 1977 PAL, YASH, M.Sc., Ph.D. (Specialization: High Energy Astrophysics & Communication). F.A.Sc. Director, Space Applications Centre, Ahmedabad 380 053, and Professor, Tata Institute of Fundamental Research, Bombay 400 005. 43 *Parimal Society, Ellis Bridge, Ahmedabad* 380 006. [Telephone: 43 296 (Off.), 83 7729 (Res.)].
- 1953 †PALIT, SANTI RANJAN, D.S.c. (Specialization : Physical Chemistry, Macromolecules, Electrochemistry). F.R.I.C., F.A.Sc. Formerly Visiting Professor, University of Science and Technology, Kumasi, Ghana, West Africa. Formerly Professor of Physical Chemistry, Indian Association for the Cultivation of Science, Calcutta. 'Naranarayan Kutir', 90 *Dr Sundari Mohan Avenue, Calcutta* 700 014. [Telephone : 44 3692].
- 1976 PANDE, IRISH CHANDRA, M.Sc., Ph.D., D.I.C. (Specialization : Structural & Metamorphic Petrology and Geotectonics). Formerly Professor and Director, Centre of Advanced Study in Geology, Panjab University, Chandigarh. C/o *The Post Master, P.O. Kala Amb* 173 001, *Nahan, H.P.*
- 1939 ‡PANDIT, CHINTAMAN GOVIND, M.B.B.S., Ph.D., D.P.H., D.T.M. 450 *Sindh Co-operative Housing Society, Ganeshkhind, Pune* 411 007. 1948  
Govt. Rep.  
1945,  
1948-52  
Treas.  
1949-51
- 1972 PANT, DIVYA DARSHAN, D.Phil. (Specialization : Plant Morphology, Anatomy, Palynology and Palaeobotany). F.B.S., F.N.A.Sc., F.A.Sc., F.L.S. Senior Professor & Head of the Department of Botany, Allahabad University, Allahabad 211 002. 106 *Tagore Town, Allahabad* 211 002. [Telephone : 51 663 (Off.), 53 208 (Res.)].
- 1972 PANT, NARENDRA CHANDRA, M.Sc. (Ag.), Ph.D. (Lond.), D.I.C. (Specialization : Economic Entomology). F.R.E.S., F.E.S.I. Director, Commonwealth Institute of Entomology, 56 Queens Gate, London, S.W. 75 JR., England. 1A, *Orchard Close, Wembley, Middlesex, HA9 1TZ*. [Telephone : (01) 584-0067 (Off.), (01) 902-4506 (Res.)].

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|--|---------------------|
| 1937 †PARANJPE, GOPAL RAMCHANDRA, M.Sc., A.I.I.Sc.,<br>(Specialization : currently Popular Science in Marathi)<br>F.A.Sc., I.E.S. (retired) Formerly Professor of Physics<br>and Principal of the Royal Institute of Science,<br>Bombay. 'Sudarshan', 1159 Sadashiv, Pune 411 030.<br>[Telephone : 441 154 (Res.)].                              | 1939-42,<br>1949-50 |
| 1976 PARTHASARATHY, KALYANAPURAM RANGACHARI,<br>Ph.D. (Specialization : Probability, Mathematical<br>Physics). F.A.Sc. Professor, Indian Statistical Institute<br>(Delhi Campus), 7 S.J.S. Sansanwal Marg, New Delhi<br>110 029. K-29 Hauz Khas, New Delhi 110 016.<br>[Telephone : 664 741 (Off.)].   |                     |
| 1949 †PARTHASARATHY, NAVALPAKKAM, Ph.D. (Lond.).<br>(Specialization : Plant Breeding and Cytogenetics).<br>Formerly Director, Central Rice Research Institute,<br>Cuttack and Executive Secretary, International Rice<br>Commission (FAO) Bangkok. 19 Sathyanarayana<br>Avenue, Boat Club Road, Madras 600 028. [Telephone :<br>44 5806 (Res.)]. | 1976-78             |
| 1978 PATEL, CHUNIBHAI CHHOTABHAI, Ph.D., (Specializa-<br>tion : Inorganic Chemistry). F.A.Sc. Professor and<br>Chairman, Deptt. of Inorganic & Physical Chemistry,<br>Indian Institute of Science, Bangalore 560 012. Bungalow<br>No. 16, Indian Institute of Science, Bangalore 560 012.<br>[Telephone : 34 411/381 (Off.)].                    |                     |
| 1967 †PAUL, RAM CHAND, Ph.D. (Pb.), Ph.D. (Cantab.),<br>Sc.D. (Cantab.). (Specialization : Inorganic Chemis-<br>try). F.R.I.C., F.N.A.Sc., F.I.A.Sc. Vice-Chancellor,<br>Panjab University, Sector 14, Chandigarh 160 014. 695,<br>Sector 8-B, Chandigarh 160 008. [Telephone : 23 669<br>(Off.), 25 586 (Res.)].                                | 1971-73             |
| 1958 PETERS, BERNARD, Ph.D., F.A.Sc., Fellow Am. Physi-<br>cal Soc., Fellow Roy. Dan. Acad. Sci. (Specializa-<br>tion : Space Physics, Cosmic Rays). Director, Danish<br>Space Research Institute, Lundtoftevej 7.2800 Lyngby,<br>Denmark. Lundtoftevej 155A, 2800 Lyngby, Denmark.<br>[Telephone : (02) 88 2277 (Off.), (02) 88 5045 (Res.)].   |                     |

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Election**Service on  
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- 1942 †PICHAMUTHU, CHARLES SOLOMON, Ph.D. (Glas.), 1973-75  
 D.Sc. (Glas.). (Specialization : Precambrian Geology).  
 F.R.S.E., F.G.S. (Lond.), F.M.S., F.G.M.S., F.G.S.  
 (Ind.). Formerly Director, Department of Mines &  
 Geology, Karnataka. 1 DeSouza Road, Bangalore  
 560 025 [Telephone : 54 341].
- 1978 PISHAROTY, PISHAROTH RAMA, M.A., Ph.D.  
 (UCLA). (Specialization: Meteorology, Earth Resources). Emeritus Professor, Physical Research Laboratory, Ahmedabad. Formerly Director, Remote Sensing and Meteorology Applications Division, Space Application Centre, Ahmedabad 380 009. A1 Sejal Apartments, Navrangpura, Ahmedabad. [Telephone: 40 242 (Off.), 42 316 (Res.)].
- 1958 PRASAD, BALBHADRA, D.Sc. (Specialization : Thermodynamics, Electrochemistry, Liquid State). F.I.C., F.N.A.Sc. Formerly Professor of Chemistry, Ravenshaw College, Cuttack. 44 Pataliputra Colony, Patna 800 013. [Telephone : 52 214 (Off.), 62 128 (Res.)].
- 1970 PRASAD, MALUR RAMASWAMY NARASIMHA, Ph.D. Ed. Pub.  
 (Mysore), Ph.D. (Wisconsin). (Specialization: Endocrinology of Reproduction). Consultant World Health 1971-74  
 Organization, Geneva, Switzerland. V.P. 1975-76
- 1935 †PRASAD, MATA, D.Sc., F.R.I.C., F.I.C., F.N.A.Sc. 1948-49,  
 (Specialization: Colloids, Magnetochemistry, Crystals, 1951-52,  
 Reaction Kinetics). Ex-Vice-Chancellor, Vikram 1955-57  
 University, Ujjain. Formerly Professor and Head of Chemistry Department and Principal of (Royal) Institute of Science, 15 Madam Cama Road, Bombay 400 032 and Director, Central Salt & Marine Chemical Research Institute, Bhavnagar. 2B, Dhawalgiri, Anushakti Nagar, Deonar, Bombay 400 094.
- 1977 PURI, BALWANT RAI, M.Sc., Ph.D. (Specialization: Physical & Surface Chemistry). F.R.I.C. Formerly Professor of Physical Chemistry, Chemistry Department, Panjab University, Chandigarh. [Telephone: 25 035 (Off.), 28 654 (Res.)].

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- 1957 †PURI, VISHWAMBHAR, D.Sc. (Specialization: Floral Morphology, Anatomy & General Biology). F.A.Sc., F.N.A.Sc., F.B.S. Professor Emeritus in Botany, Institute of Advanced Studies, Meerut University. Meerut 13, Tilak Road, Meerut 250 001. [Telephone : 75 022/19 (Off.), 73 255 (Res.)].
- 1977 QASIM, SYED ZAHOR, Ph.D., D.Sc. (Specialization: Chemical and Biological Oceanography). F.A.Sc. Director, National Institute of Oceanography, Dona Paula, Goa 403 004. Director's Bungalow, Dona Paula, Goa 403 004. [Telephone: Panjim 2155 (5 lines), 2612, (Off.), 2909 (Res.)].  
(Medal : Chandrakala Hora Medal, 1975)
- 1973 RADHAKRISHNA, BANGALORE PUTTAIYA, Ph.D. (Specialization: Economic Geology). F.A.Sc., Chairman & Managing Director, Chitradurga Copper Co. Ltd., 16 Ali Asker Road, Bangalore 560 052. Formerly Director, Deptt. of Mines & Geology, Govt. of Karnataka. 'Sri Rama', 183, Vth Main, Chamrajpet, Bangalore 560 018. [Telephone : 73053 (Off.), 63 844 (Res.)].
- 1978 RADHAKRISHNAN, A.N., Ph.D., D.I.I.Sc. (Specialization: Biochemistry). Professor and Dean, School of Life Sciences, University of Hyderabad, Hyderabad 500 001. [Telephone: 57 020 (Off.)].
- 1978 RAGHAVAN, SRINIVASACHARYA, Ph.D., (Specialization: Number Theory, Automorphic Functions). F.A.Sc. Professor, Tata Institute of Fundamental Research, Bombay 400 005. Flat 609, Colaba Housing Colony, Homi Bhabha Road, Bombay 400 005. [Telephone: 21 9111/224 (Off.), 21 9111/390 (Res.)].
- 1975 RAGHUNATHAN, MADABUSI SANTANAM, Ph.D. (Specialization: Lie Groups, Algebraic Groups). F.A.Sc. Professor of Mathematics, Tata Institute of Fundamental Research, Bombay 400005. 809, Colaba Housing Colony, Homi Bhabha Road, Bombay 400 005. [Telephone : 219111 (Off.), 214566 (Res.)].

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1953 RAIZADA, MUKAT BEHARI, M.Sc. (Specialization: Taxonomy & Nomenclature, Forest Ecology, Horticulture, Floriculture). F.B.S. Retired Principal, D.A.V. (Post-graduate) College, Dehra Dun. Formerly Chief Research Officer & Head, Division of Botany, and Professor Emeritus, Forest Research Institute & Colleges, Dehra Dun. 25-C, Circular Road, Dehra Dun 248 001. [Telephone : 4 460].

1978 RAJASEKARASSETTY, MADHAVASETTY RAMALINGAM, M.Sc., A.M., Ph.D. (USA). (Specialization : Genetics, Cytogenetics & Evolution). F.A.Sc. Professor & Head of the Department of Zoology, Manasa Gangotri, University of Mysore, Mysore 570 006. Professor's Quarters No. 7 Manasa Gangotri Mysore 570 006. [Telephone : 22 525/49 (Off.), 21 905 (Res.)].

1948 †RAJU, S.P., B.A., B.E., Dr.Ing. (Munich), M.I.E. (India). (Specialization: Engineering Research). 1 Langford Road, Bangalore 560 025.

1493 †RAKSHIT, HRISHIKESH, D.Sc. (Specialization: Radio-Physics and Electronics). F.Inst. P., F.I.E.T.E. Unesco Expert in Electronics, University of Damascus, Syria. Kavi Bharat Chandra Road, P.O. Chandannagar, Distt. Hooghly 712 136. [Telephone : Chandannagar : 246 (Res.)].

1941 †RAM BEHARI, M.A. (Pure Maths.), M.A. (Applied Maths. Panjab), M.A. (Cantab.), Ph.D., Sc.D. (Dublin). (Specialization : Differential Geometry and Relativity). Formerly Vice-Chancellor, Jodhpur University and Prof. & Head of the Department of Mathematics & Statistics, University of Delhi. 7/28 Daryaganj, Delhi 110 005. [Telephone : 22 2269 & 26 9605 (Res.)].

1974 †RAMACHANDRA, KANAKANAHALLI, Ph.D. (Specialization: Classical Analytic Number Theory). F.A.Sc. Full Professor, School of Mathematics, Tata Institute of Fundamental Research, Homi Bhabha Road, Colaba, Bombay 400 005. 702 (A/7/N), TIFR Housing Colony, Homi Bhabha Road, Bombay 400 005. [Telephone: 21 9111/246 (Off.)].

*Date of Election*

<i>Date of Election</i>	<i>Service on Council</i>
1974 RAMACHANDRAN, ARCOT, B.E.(Hons.), M.Sc. (Mech. Engg.), Ph.D. (Purdue), D. Engg. (Hon's., Stuttgart), D.Sc. (Hon., J.T. Univ.). (Specialization: Thermal Engineering). F.A.Sc., Fellow, Insttn. of Engrs, (India); Insttn. of Mech. Engrs. (Lond.); Member, International Committee on Heat & Mass Transfer; President, Solar Energy Society of India. Secretary, Department of Science & Technology, Technology Bhavan, New Mehrauli Road, New Delhi 110 029; and Director-General, CSIR. 57, Lodi Estate, New Delhi 110 003. [Telephone : 65 2260 (Off.), 61 6020 (Res.)].	Govt. Rep. 1974-77
1963 †RAMACHANDRAN, GOPALASAMUDRAM NARAYANA, M.A., M.Sc., Ph.D., (Cantab.), D.Sc. (Madras), A.I.I.Sc. (Specialization : Molecular Biophysics, Crystallography). F.A.Sc., F.R.S.A., F.R.S. Hon. Mem. Amer. Soc. Biol. Chem., Hon. For. Mem. Amer. Acad. Arts Sci. Professor of Theoretical Biology, Indian Institute of Science, Bangalore 560 012 'Gita', 5, 10A Main Malleswaram, Bangalore 560 055. [Telephone : 34 411/461 (Off.), 30 362 (Res.)]. (Medal : Srinivasa Ramanujan Medal, 1972)	
1977 RAMACHANDRAN, L. K., Ph.D. (Specialization : Biochemistry, Proteins, Antibiotics—Structure & Function). F.A.Sc. Mem. Soc. Biol. Chem. (India) Professor of Biochemistry, Osmania University, Hyderabad 500 007 (A.P.). OUB-R4,Osmania University, Hyderabad. [Telephone : 71 251/245 Off.)].	
1978 RAMADAS, VALLABHANENI SITA, D. Phil. (Oxon.) (Specialization : Plant Physiology). F.B.S., F.A.Sc. Professor and Head, Department of Botany, and Vice-Principal for Sciences, Sri Venkateswara University, Tirupati 517 502. No. 2, Red Buildings, S. V. University Campus, Tirupati 517 502. [Telephone : 2781-209/234 (Off.), 2781-292 (Res.)].	
1970 RAMAIAH, NANDURI ATCHUTA, M.Sc., Ph.D. (Specialization : Physical Chemistry). F.R.I.C. Director, National Sugar Institute, Kanpur (U.P.). 4/278, Bithoor Kothi, Tilak Nagar, Kanpur. [Telephone : 43 416, 43 730 (Off.), 42 501 Res.)].	

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- 1979 RAMAKRISHNAN, T. (Specialization : Molecular Biology of Bacteria and Viruses). Professor and Head, Microbiology & Cell Biology Laboratory, Indian Institute of Science, Bangalore 560 012 15, *Duplex Quarters, Indian Institute of Science, Bangalore 560 012.* [Telephone : 34 411/410 (Off.), 31 984 (Res.)].
- 1971 RAMALINGASWAMI, VULIMIRI, M.D., D.Sc. (Oxon.). Pres. D.Sc. (Oxon.). (Specialization : Pathology and Medical Education). F.R.C.P. (Lond.). Director, All-India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 016. *Director's Bungalow, AIIMS, Ansari Nagar, New Delhi 110 016.* [Telephone : 66 7681 (Off.), 66 7723 (Res.)].  
(Medal : J.C. Bose Medal, 1977)
- 1955 †RAMAMURTI, BALAKRISHNA, M.A., D.Sc. (Specialization : Mathematics, Statistics : Theory & Applied). Member, International Statistical Institute. Formerly Regional Statistician, United Nations. *C/o R. Badrinath (I.A.S.) 43, Bharati Nagar, New Delhi 110 003.* [Telephone : 619143].
- 1977 RAMANAN, SUNDARAMAN, Ph.D. (Specialization : Algebraic & Differential Geometry). F.A.Sc. Professor, Tata Institute of Fundamental Research, 601 Colaba Housing Colony, Homi Bhabha Road, Bombay 400 005. *Homi Bhabha Road, Colaba, Bombay 400 005.* [Telephone : 21 9111 (Off.), 21 4208 (Res.)].
- 1959 RAMANATHAN, K. GOPALAIYER, Ph.D. School of Mathematics, Tata Institute of Fundamental Research, Bombay 400 005. 910, *TIFR Housing Colony, Homi Bhabha Road, Bombay 400 005.* [Telephone : 21 9111 (Off.), 21 1974 (Res.)]. 1974-76
- 1935\* ‡RAMANATHAN, KALPATHI RAMAKRISHNA, M.A., D.Sc. (Specialization : Atmospheric Physics, Hydrology and other Earth Sciences.). F.A.Sc. Emeritus Professor, Physical Research Laboratory, Navrangpura, Ahmedabad 380 009. Formerly Professor & Director, P.R.L. 'Rameshwaran' (Near Azaad Society), Ahmedabad 380 015. [Telephone : 40 242 (Off.), 83 7756 (Res.)]. 1942-44  
(Lecture : Sisir Kumar Mitra Memorial Lecture, 1966)  
Medal : Aryabhata Medal, 1977 1955-56  
V.P.

<i>Date of Election</i>	<i>Service on Council</i>
1973 †RAMANNA, RAJA, Ph.D., D.Sc. (Specialization : Nuclear Physics). Scientific Adviser to Raksha Mantri & Director-General, Research & Development and Secretary to Government of India for Defence Research in Ministry of Defence, New Delhi. (Formerly : Member for Research & Development, Atomic Research Centre, and Professor, Tata Institute of Fundamental Research, Colaba, Bombay 400 085). 17, <i>Pandara Road, New Delhi 110 003.</i> [Telephone : 37 1519 (Off.), 39 2024 (Res.)].	1975-76 Pres. 1977-78
1948 ‡RAMANUJAM, SRINIVASA, M.A., Ph.D.(Lond.). (Specialization : Cytogenetics, Plant-Breeding). Formerly Director, Central Potato Research Institute. 'Srivas', 18, 19th Cross Road, Malleswaram, Bangalore 560 055. [Telephone : 31 590 (Res.)].	
1972 RAMASESHAN, SIVARAJ, (Specialization : Crystallography, Optics, Materials). F.A.Sc. Head, Material Sciences Division, National Aeronautical Laboratory, Bangalore 560 017. No. 7/10, <i>Palace Cross Road, Bangalore 560 020.</i> [Telephone : 50 098 (Off.), 31 840 (Res.)].	1974-76
1957 RAMASWAMI, LADAPUR SRINIVAS, D.Sc. (Specialization : Reproductive Biology). Visiting Professor, Dept. of Zoology, Shivaji Univ., Kolhapur-4. Formerly Senior Professor of Zoology, Rajasthan University, Jaipur. 387, <i>Upper Palace Orchard, Sadashivnagar, Bangalore 560 006.</i> <b>(Medal : Sunder Lal Hora Medal, 1975)</b>	1971-73
1972 RAMASWAMY, GURUVAYUR SUBRAMANIAM, C.E. (Engg.). M.S. (Engg.) (Cal. Tech.), B.E. (Hons.), C.E. (Hons.). (Specialization : Structural Engineering). F.A.Sc., F.I.E. UNIDO Chief Tech. Adviser CARIRI, Tunapuna P.O., St. Augustine, Trinidad, West Indies. Formerly Director Structural Engineering Research Centre, CSIR. E119, 16th Cross Road, Madras 600090.	1975-77

<i>Date of Election</i>	<i>Service on Council</i>
1935 †RAMDAS, LAKSHMINARAYANAPURAM ANANTHA-KRISHNA, Ph.D. (Specialization : Physics, Atmospheric Physics). F.A.Sc., F.N.A.Sc., F.I.G.U. Mem. Int. Bio. Met. Soc., F.R. Met. Soc. (Lond.), Professional Mem. Am. Met. Soc., Fellow of World Academy of Art and Science (FWA). Scientist Emeritus, National Physical Laboratory, Hillside Road, New Delhi 110 012. C-14 Inderpuri, New Delhi 110 012. [Telephone : 58 7161/298 (Off.), 58 4078 (Res)].	1945-47 1950-52
1942 †RAMIAH, KRISHNASWAMY, M.Sc. (Camb.), D.I.P. V.P. Agri. (Cantab.), D.Sc. (h.c.). (Specialization : Plant Genetics & Agronomy). F.A.Sc., F.N.A.Sc., F.B.S. Formerly Director, Central Rice Research Institute, Cuttack. 'Swathi', 19th Cross Road, Malleswaram, Bangalore 560 055. [Telephone : 30 713]. (Medal : Sunder Lal Hora Medal, 1969)	1969-70
1977 RANADIVE, KAMAL JAYSING (MRS), Ph.D. Emeritus Medical Scientist (ICMR), Institute for Research in Reproduction & Tata Memorial Centre, Parel, Bombay 400 012. 27/1 Nishigandh, MIG Colony, Express Highway, Bandra East, Bombay 400 051. [Telephone : 44 8427 & 44 2703 (Off.), 549506 (Res.)].	
1943 †RANDHAWA, MOHINDER SINGH, D.Sc. (Specialization: Phycology, Floriculture, Agriculture). F.N.I.S.A., I.C.S. (retired). Ex-Vice-Chancellor, Punjab Agricultural University, Ludhiana. Garden House, Garden Colony, Kharar 140 301, (near Chandigarh). [Telephone : 88 258]. (Medal : Silver Jubilee Commemoration Medal, 1979)	1947, 1959 61 Treas. 1948 V.P. 1979-
1961 RANGASWAMI, SRINIVASA, M.A., Ph.D., Dr. Phil., Adviser, IDL Chemicals, Hyderabad 500 018. 6-1-289/15, Padama Rao Nagar, Hyderabad 500 025. [Telephone : 26 1581]. (Medal : Silver Jubilee Commemoration Medal, 1970)	Treas. 1969-72

<i>Date of Election</i>	<i>Service on Council</i>
1969 RAO, BARRI RAMACHANDRA, D.Sc., D.Sc. ( <i>h.c.</i> ). (Specialization : Space Physics, Ultrasonics, & Electronics). F.A.Sc., F.N.A.Sc. Vice-Chairman, University Grants Commission, Bahadur Shah Zafar Marg, New Delhi 110 002. 7, <i>Bhagwan Dass Road, New Delhi</i> 110 001. [Telephone : 27 4521 ( <i>Off.</i> ), 38 9335 ( <i>Res.</i> )].	1972-74 Treas. 5 Mar. 1977-
1966 RAO, C. VENKATA, M.Sc. (Hons.), D.I.C. (Lond.), Ph.D. (Delaware), M.I.I.Ch.E., Member Pi, Mu, Epsilon. Emeritus Professor, Department of Chemical Engineering, University College of Engineering, Andhra University, Waltair. 47-11-15, <i>Dwarka Nagar, Visakhapatnam</i> 53 0004.	
1954 †RAO, CALYAMPUDI RADHAKRISHNA, Sc.D., Hon. Doctrates (Leningrad, Athens, Andhra, Delhi and Osmania Universities). (Specialization : Mathematical Statistics). F.R.S., Hon. Foreign Fellow, American Academy of Arts and Science, Jawaharlal Nehru Professor, Indian Statistical Institute, 7, S.J.S. Sansanwal Marg, New Delhi 110 029. J-19 <i>Hauz Khas, New Delhi</i> 110 016. [Telephone : 67 8823, 67 8888 ( <i>Off.</i> ), 69 0113 ( <i>Res.</i> )]. <b>(Medal : Meghnad Saha Medal, 1969)</b>	1963-64 V.P. 1973-74
1974 †RAO, CHINTAMANI NAGESA RAMACHANDRA, D.Sc., Ph.D. (Specialization : Solid State Chemistry, Spectroscopy and Molecular Structure). C. Chem. F.R.I.C., F.N.A.Sc., F.A.Sc., Centennial Foreign Fellow of the American Chemical Society. Professor and Chairman, Solid-State and Structural Chemistry Unit, and Materials Research Laboratory, Indian Institute of Science, Bangalore 560 012. 40/6, <i>Patankar Layout, 13th Cross Maleswaram, Bangalore</i> 560 003. [Telephone : 34 411/439 ( <i>Off.</i> ), 35 910 ( <i>Res.</i> )].	1976-78
1979 RAO, NEELAMRAJU GANGA PRASADA, B.Sc. (Ag.); Assoc. IARI, Ph.D. (Specialization : Plant Breeding & Genetics). Fellow, Andhra Pradesh Academy of Sciences, Fellow, Indian Society of Genetics and Plant Breeding. Professor of Eminence and Head, National Research Centre for Sorghum, IARI-Regional Station, Rajendranagar, Hyderabad 500 030 (AP). H. No. 1-2-412/3/1, <i>Gagan Mahal Colony Hyderabad</i> 500 029 (A.P.). [Telephones : 48 084 ( <i>Off.</i> ), 64 248 ( <i>Res.</i> )].	

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- 1968 RAO, POTUKUCHI SURYAPRAKASA, D.Sc. (Specialization : Chemistry of Natural Products & Plant Biochemistry). F.R.I.C., F.A.Sc., F.I.A.W.S., F.A.H.S. Professor of Chemistry, Sri Sathya Sai Arts, Science & Commerce College, Bangalore. 'Sai Nilaya', Ganganahalli Extension, Bangalore 560 006. [Telephone : 129 (Off.)].
- 1948 †RAO, SUBBARAO RAMACHANDRA, Ph.D., D.Sc. (Specialization : X-Rays and Magnetism). F. Inst. P., F.A.Sc. Formerly Professor of Physics, Sri Venkateswara University, Tirupathi. 14, Valluvar Street, Subash Nagar, Chromepet, Madras 600 044.
- 1957 RAO, THAMMAJIRAO RAMACHANDRA, D.Sc. (Specialization : Medical Entomology/Virology). F.A.M.S. Formerly Director, Virus Research Centre (ICMR), Pune. 5, 8th Main Road, Malleswaram, Bangalore 560 003. [Telephone : 30 298].  
(Lecture : Sisir Kumar Mitra Lecture, 1978)
- 1979 RAO, UDIPU RAMACHANDRA, M.Sc., Ph.D. (Specialization : Space Physics and Satellite Technology). F.A.Sc. Director, ISRO Satellite Centre, A 1-6, Peenya Industrial Estate, Bangalore-560 058. 179/5, Lower Palace Orchard, Bangalore 560 003. [Telephone : 38 395 (Off.), 30 970 (Res.)].
- 1975 RASTOGI, RANGHUNATH PRASAD, M.Sc., Ph.D. (Specialization : Physical Chemistry). F.R.I.C., A.F.A.I.A.A., F.N.A.Sc., F.A.Sc. Professor & Head of the Department of Chemistry, Faculty of Science, University of Gorakhpur, Gorakhpur 273 001. 5, University Professor's Colony, Gorakhpur 273 001. [Telephone : 938 (Res.)].
- 1962 †RAY, AMAR PRASAD, M.B.B.S., Ph.D. (Specialization : Malaria—All aspects). F.I.S.C.D., F.A.M.S. Chief Co-ordinator (WHO), Malaria Control and Research, c/o WHO, New Delhi 110 001. L-7 Green Park, New Delhi 110 016. [Telephone: 27 0181 (Off.), 66 7753 (Res.)].

<i>Date of Election</i>	<i>Service on Council</i>
1935* †RAY, PRIYADARANJAN, M.A., D.Sc. ( <i>h.c.</i> ). (Specialization : Inorganic & Analytical Chemistry). 50/1, Hindustan Park, Ballygunge, Calcutta 700 029. (Medal : Shanti Swarup Bhatnagar Medal, 1968)	1943-45
1961 RAY, SURENDRA NATH, Ph.D. (Cantab.). (Specialization : Animal Physiology and Nutrition). Member, Sigma Xi (USA). Formerly Director, National Dairy Research Institute. 49 B Chakrabere Road North, Calcutta 700 020. [Telephone : 47 6508 ( <i>Res.</i> )].	
1956 RAYCHAUDHURI, SACHI PRASAD, M.Sc., Ph.D. (Edin.). (Specialization : Molecular Cytogenetics) Genetics Research Unit, Department of Zoology, Calcutta University, 35 Ballygunge, Circular Road, Calcutta 700 019. 30A, Old Ballygunge, Second Lane, Calcutta 700 019. [Telephone : 47 3681 ( <i>Off.</i> ), 47 3790 ( <i>Res.</i> )].	
1952 †RAYCHAUDHURI, SATYA PRASAD, M.Sc. Ph.D (Lond.), D.Sc. (Calcutta & London). (Specialization : Fertilizer Agriculture). F.R.I.C. (London.), F.N.A. Sc., F.W.A. Chief Agronomist, Shriram Khad Programme, 16 B, Gangaram Hospital Marg, New Delhi 110 060. [Formerly : Head of the Division of Soil Sciences and Agricultural Chemistry and Chief Soil Survey Officer, IARI, New Delhi and Senior Specialist (Land Resources), Planning Commission, Govt. of India]. EC9, Inder Puri, New Delhi 110 012. [Telephone : 58 9989 ( <i>Off.</i> ), 58 6751 ( <i>Res.</i> )].	
1966 RAYCHAUDHURI, SYAMA PRASAD, M.Sc., D. Phil., Assoc. I.A.R.I. F.P.S.I., F.N.A.Sc. (Specialization : Plant Pathology, Virology & Tissue Culture. Formerly Head of the Division of Mycology and Plant Pathology, Indian Agricultural Research Institute, and Adviser, Haryana Agricultural University, Hissar. C-52, Inder Puri, New Delhi 110 012. [Telephone : 56 9429 ( <i>Res.</i> )].	

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1945 †ROONWAL, MITHAN LAL, Ph.D., Sc.D. (Cantab.). (Specialization : Entomology, Ecology & Behaviour). Member : Zool. Soc. (India), Ind. Acad. Wood Sci. Ex-Director, Zoological Survey of India, and Ex-Vice-Chancellor, Jodhpur University, Jodhpur. 'Roonwal Bhawan', 2/1, Polo Ground No. 2, Jodhpur 342 001. [Telephone : 20 744 (Off.)].	1961-63
1966 †ROW, LAKKARAJU RAMACHANDRA, D.Sc., F.A.Sc. (Specialization : Organic Chemistry). Special Officer, Andhra University Post-graduate Courses, Nuzvid (A.P.), 10-2-1A, Siripuram, Waltair Uplands, Visakhapatnam 521 201. [Telephone : 60 (Off.)].	
1957 ROY BHABESH CHANDRA, A.I.S.M., D.I.C. (Lond.). Dr. Ing. 373 South End Park, Calcutta 700 029.	
1966 †ROY, BINOD BIHARI M.B., M.S., D. Phil. D.Sc., D.Sc. (Exp. Surg.). (Specialization : Surgery, Experimental Surg.) Member: Assn. Surg.(India), Asson. Orthop Surg. India. Head, Deptt. of Surgery, R.G. Kar Medical College & Hospitals. 16 B Sachin Mittar Lane, Calcutta 700 003. [Telephone : 55 4311 (Off.), 55 3158 (Res.)].	
1968 †ROY, RAM PARIKSHAN, M.Sc., Ph.D. (Cantab.) (Specialization : Cytogenetics, Plant Breeding & Tissue Culture). F.L.S. (Lond.), F.N.A.Sc., F.B.S. Professor of Botany, Patna University, Patna 800 005. Professors' Quarters, Ranighat, Patna 800 006. [Telephone : 52 373 (Off.), 51 481 (Res.)].	1972-74
1972 †ROY, SUPRIYA, D. Phil., D.Sc. (Specialization : Economic Geology, Mineralogy). Professor of Geology, Jadavpur University, Calcutta 700 032, 99/5/10 Ballygunge Place, Calcutta 700 019. [Telephone : 46 3451 (Off.), 47 6578 (Res.)].	1979-
1955 †SADASIVAN, TOPPUR SEETHAPATHY, D.Sc., Ph.D. (Lond.). (Specialization : Plant Pathology). F.A.Sc. Professor Emeritus. Formerly Director, Centre of Advanced Study in Botany, University of Madras Currently Professor, Birbal Sahni Institute of Palaeobotany, P.B. No. 106, 53 University Road Lucknow 226 007, U.P. Gokulam, 86 M.K.A. Koil Street, Mylapore, Madras 600 004. [Telephone : 72 601)]. (Medal : Sunder Lal Hora Medal, 1973)	1958-59,

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1966 †SADHU, DULAL PADA, L.M.F., Ph.D. (Specialization : Physiology & Nutrition, Endocrinology, Biology of Reproduction & Cell Biology). F.N.A.Sc. Emeritus Scientist, and Ex-Professor of Physiology and Nutrition, Bengal Veterinary College, Calcutta 700 037. 506 *Paranasreepalli, Calcutta 700 060.* [Telephone : 56 3165 (Off.), 77 5408 (Res.)]. 1972-74

1959 †SAHA, AJIT KUMAR, D.Sc. Professor of Nuclear Physics, Saha Institute of Nuclear Physics, 92 Acharya Prafulla Chandra Road, Calcutta 700 009. 125 *Dr Meghnad Saha Sarani, Calcutta 700 029.* Ad. Mem. 1967-69

1968 SAHA, AJIT KUMAR, M.Sc., D. Phil. (Calcutta), Ph.D. (Toronto). (Specialization : Petrology, Geomathematics Precambrian Geology). F.A.Sc. Professor of Geology, Presidency College, Calcutta 700 073. 4C, *Sitaram Ghosh Street, Calcutta 700 009.* [Telephone : 34 116 (Off.)]. 1974-76

1957 †SAHA, NALINI KANTA, M.Sc., P.R.S. Dr. Nat (Heidelberg). (Specialization : Nuclear Physics, Instruments). Member, American Physical Society, New York, Life-Member and Past-President of Physics Section, Ind. Sci. Cong. Assoc. Professor of Physics, University of Delhi, Delhi 110 007. I-1697, *Chittaranjan Park, Kalkaji, New Delhi 110 019.* [Telephone : 63 3527 (Res.)].

1950 †SAHNI, MULK RAJ, M A., Sc.D. (Cantab.), D.I.C., Ph.D., D.Sc. (Lond.), F.A.Sc., M.G.M.I., F.P.S. President, Palaeontological Society of India, Lucknow. 98 *Mahatma Gandhi Marg, Lucknow 226 011.* 1963-65

1972 SAKSENA, SHYAM BAHADUR, Ph.D. (Specialization : Mycology, Plant Pathology, Microbiology). F.N.A.Sc., F.B.S. Visiting Professor, School of Studies in Botany, Jiwaji University, Gwalior 474 002.

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1971 SANTAPPA, MUSHI, Ph.D., F.A.Sc., F.R.I.C. (Lond. & Manch.) (Specialization : Polymer Chemistry, Photo Chemistry, Complexometry, Chemical Kinetics, Leather Technology). F.A.Sc., F.R.I.C. Director, Central Leather Research Institute and Hon. Professor of Physical Chemistry, University of Madras, Adyar, Madras 600 020. 72, III, Main Road, Kasturba Nagar, Adyar, Madras 600 020. [Telephone : 41 2150 (Off.), 41 3620 (Res.)].	1973-75
1976 SANYAL, GITINDRA SARAN, M.Sc. (Specialization : Microwave Engineering), F.I.E., M.I.T.E., Professor & Head, Centre for Research & Training in Radar and Communication, Indian Institute of Technology, Kharagpur 721 302. Bungalow No. A-22, IIT Campus, P.O. Kharagpur 721 302, Distt. Midnapore, West Bengal. [Telephone : KGP 221 (Off.)].	
1973 †SARKAR, JALADHI KUMAR, M.B.B.S., D. Bact. (Lond.), Ph.D. (Specialization : Microbiology & Virology). F.A.M.S. Emeritus Scientist I.C.M.R. and Officer-incharge, Virus Unit, I.C.M.R. Ex-Professor & Head of the Department of Virology, School of Tropical Medicine, Chittaranjan Avenue, Calcutta 700 073. Deptt. of Virology, S.T.M., Calcutta 700 073. 87, Golf Club Road, Calcutta 700 033. [Telephone: 34 4660 (Off.), 46 3765 (Res.)].	
1946 ‡SARKAR, PULIN BIHARI, D.Sc. (Specialization : Chemistry & Technology of Jute Fibre). Mem. Ind. Asson. Cultvn. Sci. Formerly Director of Technological Research Laboratories, Indian Central Jute Committee. P-133-B, Lake Terrace, Calcutta 700 029. [Telephone : 46 2517].	
1974 SARKAR, SAMARENDRA NATH, M.Sc., Ph.D. (Edin.). (Specialization : Precambrian Stratigraphy, Tectonics & Geochronology). Senior Professor & Head of the Department of Applied Geology, Indian School of Mines, Dhanbad 826 004. Bungalow VI(I) ISM Campus, Dhanbad 826 004. [Telephone : 3178 (Off.)].	1976-78

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- 1979 SASTRI, VASUDEVA VATILALA, B.Sc. (Hons), M.Sc., Post-graduate Petrol. Geol. Univ of Alberta, Canada, (Specialization : Micropalaontology, Stratigraphy and Petroleum Geology). F.G.S.(I). Director (Research and Development), Institute of Petroleum Exploration, Oil and Natural Gas Commission, Kaulagarh Road, Dehra Dun 248 195. 35 *East Canal Road, Dehra Dun* 248 031 [Telephone : 4848 (Off.), 3868 (Res.)].
- 1976 SASTRI, MYLAPORE VENKATARAMA CHELLAPPA, Ph.D. (Specialization : Catalysis & Solid State Chemistry). Scientist-in-Charge, DST-Hydrogen Project, and Chairman, Hydrogen Energy Task Force, Materials Science Research Centre, Indian Institute of Technology, Madras 600 036. 25, *Third Cross Road, IIT Campus, Madras* 600 036. [Telephone : 43 2742/210 (Off.), 43 2742/272 (Res.)].
- 1973 SAXENA, KAILASH NARAIN, D.Phil. (Specialization : Entomology & Behavioural Physiology). Visiting Director of Research, International Centre of Insect Physiology & Ecology, Nairobi, Kenya (1977-1980). Professor & Head of the Department of Zoology, University of Delhi, Delhi 110 007. 38/22, *Probnn Road, Delhi* 110 007. [Telephone : 22 9202 & 22 8995 (Off.), 22 9926 (Res.)]. 1975-78
- 1955 †SEAL, SRISH CHANDRA, M.B., D.P.H., Ph.D. (Specialization : Medical Sciences). Hon. F.A.P.H.A. (USA), F.A.M.S., F.A.S., F.N.I.E., Director, Indian Fertility Research Programme, 8 Sarojini Naidu Sarani, Calcutta 700 017, and Consultant, Health Cell, Calcutta Metropolitan Development Authority, 225 C, Acharya J. C. Bose Road, Calcutta 700 020. 2, *Fern Place, Calcutta* 700 019. [Telephone : 44 1534 & 43 2468 (Off.), 42 4541 (Res.)].
- 1951 †SEN, NIRMAL KUMAR, D.Sc. (Specialization : Forensic Chemistry). F.I.C., F.A.F.Sc., F.R.I.C. (Lond.). Formerly Senior Professor & Head of Department of Chemistry, Presidency College, Calcutta. Founder Director, State Forensic Science Laboratory, West Bengal. 'Nirala', 22/3H, *Sreenath Mukherjee Lane, Calcutta* 700 030. [Telephone : 52 8036].

<i>Date of Election</i>	<i>Service on Council</i>
1962 †SEN, PRAFULLA KUMAR, M.B., M.D. (Berlin), Ph.D. (Specialization : Respiratory Diseases & Tuberculosis). T.D.D. (Wales), F.C.C.P.(USA), F.A.M.S., F.S.M.F., F.I.P.H.A. Director, B. C. Roy Tuberculosis & Chest Diseases Research Institute, 63, Dharmatola Street, Calcutta 700 013. 99/5/4, <i>Ballygunge Place, Calcutta</i> 700 019. [Telephone : 24 3352 (Off.), 47 7512 (Res.)].	
1979 SEN, SISIR KUMAR, M.Sc., M.S., Ph.D. (Specialization : Metamorphic Petrology, Geochemistry). F.G.M.M.S.I., F.G.S.I., F. Geoch.S.I. Professor of Geology, Indian Institute of Technology, Department of Geology & Geophysics, Kharagpur-721 302. B-130, <i>Kharagpur</i> 721 302. [Telephone : 221 to 224 (Off.)].	
1979 SENGUPTA, PASUPATI, M.Sc., Ph.D. (Specialization : Organic Chemistry). Fellow of the Indian Chemical Society, Member of Indian Science Congress Association for the Cultivation of Science. Professor and Head, Department of Chemistry, University of Kalyani, Kalyani-741 235 (W. Bengal). P-10/249 <i>Kalyani, Nadia, W. Bengal.</i> [Telephone : 220, 286-Kalyani (Off.)].	
1954 SENGUPTA, MONORANJAN, B.Sc. (Cal.) B.Sc. (Engg.). (Hons.), (Glas.), C.P.E. (Glas.). (Specialization : Electrical Engineering General). F.I.E.E. (Lond.). F.I.E., F.I. Mech. E. (Lond.), F.I.E.R.E. (Lond.). Retired Principal and Professor & Head, Department of Electrical Engineering College, Banaras Hindu University, Varanasi. B 21/108, <i>Binayak (Kamachha), Varanasi, U.P.</i> [Telephone : 66 813].	
1953 †SESHACHAR, BAGEPALLI RAMACHANDRACHAR, D.Sc. (Specialization : Cell Biology, Protozoology). F.A.Sc. Professor Emeritus of Zoology, University of Delhi. Formerly Professor and Head, Deptt. of Zoology, University of Mysore and University of Delhi. Hony. Associate Member, Center for Theoretical Studies, Indian Institute of Science Bangalore. 50, 10th Main Road, Malleswaram, <i>Bangalore</i> 560 055. [Telephone : 31469 (Res.)].	1956-58,
	1960 Sec.
	1961-64 F.Sec.
	1965-66 Ed. Pub.
	1967-70 Pres.
	1971-72 Ad. Mem
	1973-74
(Medal : Sunder Lal Hora Medal, 1965)	

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- 1973 SESHADRI, CONJEEVARAM SRIRANGACHARI, M.A., Ph.D. (Specialization : Algebraic Geometry). Senior Professor, Tata Institute of Fundamental Research, Homi Bhabha Road, Bombay 400 005. 710, TIFR Housing Colony, Homi Bhabha Road, Bombay 400 005. [Telephone : 21 9111 (Off.), 21 3937 (Res.)].
- 1961 SETH, BHOJ RAJ, M.A., M.Sc., Ph.D., D.Sc. (Lond.), D.Sc.(h.c., I.I.T. Kharagpur). (Specialization : Applied Mathematics, Mechanics). F.A.Sc., Member : Amer. Math. Soc., Lond. Math. Soc., GAMM. Honorary Professor, Delhi University. [Formerly : Vice-Chancellor, Dibrugarh University, Dibrugarh, Director, Birla Institute of Technology, Mesra, Ranchi 835 215, and I.I.T., New Delhi 110 029]. 41/42 Lucknow Road, Delhi 110 007.
- 1970 SETHNA, HOMI NUSSERWANJI, B.Sc., B.Sc. (Tech.), M.S.E. (Mich.), D.Sc. [h.c., Marathawada Roorkee, Karnataka & Mysore Universities, IIT (Bombay), Orissa University of Agriculture & Technology], D. Tech. (h.c., Jawaharlal Nehru Technological University), LL.D. (h.c., Bombay University). (Specialization : Engineering). F.A.Sc., F.I.E., Fellow of the Maharashtra Academy of Sciences. Secretary to the Government of India, Department of Atomic Energy and Chairman, Atomic Energy Commission, Chhatrapati Shivaji Maharaj Marg, Bombay 400 039. 12B, Atomic Energy Apartments, Little Gibbs Road, No. 2, Malabar Hill, Bombay 400 006. [Telephone : 25 5521 (Off.), 36 7805 (Res.)]. Ad. Mem. 1977
- 1952 †SHAH, SWARUPCHAND MOHANLAL, Ph.D., D. Litt. (Lond.). (Specialization : Complex, Real Analysis). F.A.Sc., F.R.S.E. Emeritus Professor of Maths. Univ. of Kentucky, Lexington, Kentucky 40 506, U.S.A. Formerly Visiting Professor, Deptt. of Maths., University of Texas at Arlington, Arlington, Texas, USA 76 019. Deptt. of Maths., University of Kentucky Lexington, Kentucky 40 506, U.S.A. 417, Columbia Avenue, Lexington, Kentucky 40508 [Telephone : 606-257-4090 (Off.), 606-255-5892 (Res.)].

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- 1969 SHANKAR, JAGDISH, Ph.D., M.S. (Chem. Engg.) (Columbia). (Specialization : Nuclear & Radiation Chemistry). F.I.A.Sc. Ex-Director (SRC), University Grants Commission, Bahadur Shah Zafar Marg, New Delhi 110 002. 4 *Saras Bagh*, Deonar, Bombay 400 088. [Telephone : 52 5570].
- 1977 †SHARMA, ARCHANA (MRS), Ph.D., D.Sc. (Specialization : Cytology and Genetics). F.A.Sc., Member : Ind. Bot. Soc., Ind. Soc. Gen. Pl. Brdg., SABRO, Professor of Botany, Calcutta University, 35, Ballygunge Circular Road, Calcutta 700 019. 18/3 *Gariahat Road*, Flat No. 2F(2) Calcutta 700 019. [Telephone : 47 3681 (Off.), 47 1083 (Res.)].
- 1970 †SHARMA, ARUN KUMAR, D.Sc. (Specialization : Cytogenetics, Cytochemistry and Cell Biology). F.A.Sc. Corresponding Fell. Argel. Acad. Sci. Professor & Head of the Department of Botany, Calcutta University, 35 Ballygunge Circular Road, Calcutta 700 019. Flat No. 2F(2), 18/3. *Gariahat Road*, Calcutta 700 019. [Telephone: 47 3681 (Off.), 47 1083 (Res.)].  
(Medal : Silver Jubilee Commemoration Medal, 1976)
- 1962 †SHARMA, GANPATI PARSHAD, Ph.D. (Pb.), Ph.D. (Edin.), (Specialization : Cytology—Nuclear and Cytoplasmic). F.A.Z., F.N.A.Sc., F.I.A.Z., F.Z.S., F.Z.S.I., F.R.S.I., F.R.M.S. Professor of Zoology, Panjab University, Chandigarh 160 014. House No. 505-P, Sector 36-B, Chandigarh. [Telephone : 25 042 (Off.), 25 706 (Res.)].
- 1978 SHARMA, KAMAL NATH, M.D. (Specialization : Neurophysiology, Biocontrols, & Nutrition). F.A.Sc., F.A.M.S. Member: A.A.A. (USA), Psychonomics (USA), APA (USA), A.P.P.I. Chairman & Professor of Physiology, University College of Medical Sciences, New Delhi. C-212, *Greater Kailash*, New Delhi 110 048. [Telephone : 61 6697 (Off.), 63 5438 (Res.)].
- 1976 SHARMA, MAN MOHAN, Ph.D. (Cantab.). (Specialization : Mass Transfer with Chemical Reaction). F.A.Sc., F.I.Chem. E., C. Eng., F.R.I.C., M.I.I. Chem.E., A.I.C. Professor, Department of Chemical Technology, University of Bombay, Matunga Road, Bombay 400 019. 16, *University Staff Quarters*, Behind Department of Chemical Technology, Matunga Road, Bombay 400 019. [Telephone : 47 6361 (Off.), 48 1264 (Res.)].

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- 1963 †SHRIKHANDE, SHARADCHANDRA SHANKAR, Ph.D. 1969-71  
 (Specialization : Combinatorics and Graph Theory). Head of the Department of Mathematics, University of Bombay, Vidyanagari, C.S.T. Road (Kalina), Santacruz (East), Bombay 400 098. Presently at *Pukharaj Flat No. 3 Laxmi Nagar Nagpur 440 010* [Telephone : 53 2241 (Off.), 29 2292 (Res.)].
- 1937 †SIDDIQI, MOHAMMAD RAZIUDDIN, M.A., Ph.D. 1941-43,  
 Secretary, Pakistan Academy of Sciences, Islamabad. H. No. 2, Street 6, Sector, Shalimar 7/3, Islamabad, 1946-47  
*Pakistan.*
- 1977 SIDDIQI, OBAID, Ph.D. (Specialization : Molecular & Behavioural Genetics). Professor of Molecular Biology, Tata Institute of Fundamental Research, Colaba, Bombay 400 005. Flat 310, TIFR Housing Colony, Homi Bhabha Road, Colaba, Bombay 400 005. [Telephone : 21 9111/337 (Off.)].
- 1968 SINGH, BAIJ NATH, Ph.D. (Dublin), Ph.D. (Lond.), D.Sc. (Lond.). [Specialization : Protozoology, (Pathogenic and non-pathogenic amoebae), Cytology & Myxobacteria]. Emeritus Scientist (CSIR), Central Drug Research Institute, Lucknow. Carlton Hotel, Room No. 205, Lucknow. [Telephone : 22 051 (Off.) 47 753 (Res.)].
- 1941 †SINGH, BHOLA NATH, D.Sc. (Specialization : Plant Physiology, Agriculture & Agronomy). F.N.A.Sc., F.A.Sc., F.R.H.S. (Lond.). Formerly Irwin Professor of Agriculture, Kapurthala, Professor of Agricultural Botany, University Professor of Plant Physiology, Director, Institute of Agricultural Research, Banaras Hindu University, Retd. Crop Physiologist to Government of U.P., and Director, Institute of Crop Physiology, Lucknow. 1 Faizabad Road (Opp. I.T. College), Lucknow 226 007. [Telephone : 31 702].
- 1963 SINGH, SATYA NARAYAN, Ph.D. (Lond.), D.Sc. (Lond.). (Specialization . Helminthology). Emeritus Scientist, ICAR. Formerly Professor & Head of the Department of Zoology, Osmania University. 1-2-412-7 Domalguda, Hyderabad 500 029 (A.P.). [Telephone : 61 377].

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Council*

- 1975 †SINGH, VIRENDRA, Ph.D. (Specialization : Theoretical Physics). F.A.Sc. Professor of Theoretical Physics, Tata Institute of Fundamental Research, Bombay 400 005. 610, *TIFR Housing Colony, Homi Bhabha Road, Bombay 400 005.* [Telephone : 21 9111/232 (Off.), 21 4869 (Res.)].
- 1962 †SINGWI, KUNDAN SINGH, M.Sc., D.Sc. Department of Physics, North Western University, Evanston, Illinois 60201, USA. 1443 *Edgewood Lane, Winnetka, Illinois 60093, USA.* [Telephone : 312-492-3235 (Off.) 312-446-8468 (Res.)].
- 1978 SINHA, AKHOURY PURNENDU BHUSAN, Ph.D. (Specialization : Solid State Chemistry). F.A.Sc. Scientist, National Chemical Laboratory, Pune 411 008. *B/4 NCL Colony, Pune 411 008.* [Telephone : 54 353 (Off.), 58 273 (Res.)].
- 1966 †SINHA, AWADH KISHORE PRASAD, Ph.D. (Michigan) (Specialization : Social, Experimental and Personality) Fellow, Int. Counc. Psych. Professor & Head of the Department of Psychology, Ravishankar University, Raipur 492 002. *Teachers' Hostel, Ravishankar University, Raipur 492 002* (M.P.)
- 1979 SINHA, KRITYUNJAI PRASAD, M.Sc., Ph.D. (Poona), Ph.D. (Bristol). (Specialization : Solid State & Theoretical Physics). F.A.Sc. Senior Professor, Division of Physics and Mathematical Sciences, Indian Institute of Science, Bangalore 560 012. 48/6, *VIII Main Road, Malleswaram, Bangalore 560 003.* [Telephones : 34 411 (Off.), 35 553 (Res.)].
- 1960 †SINHA, MRIGANKA SEKHAR, D.Sc. (Specialization : High Energy Physics & Cosmic Rays). Senior Professor & Head of the Department of Physics, Regional Engineering College, Durgapur 713 209. *Qr. No. DS/2C, Durgapur 713 209.* [Telephone : 2 369 (Off.), 2 376 (Res.)].
- 1942 †SIRKAR, SUKUMAR CHANDRA, D.Sc. Emeritus Professor of Physics, Indian Association for the Cultivation of Science, Jadavpur, Calcutta 700 032. 122/1B, *South Sonthi Road, Calcutta 700 030.* [Telephone : 46 9371 (Off.)].

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Election**Service on  
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- 1978 SODHA, MAHENDRA SINGH, Ph.D. (Specialization : Plasmas, Optics, Energy). Professor of Physics and Head, Centre of Energy Studies, Indian Institute of Technology, New Delhi 110 029. [Telephone : 65 4114 (Off.), 66 6979/219 (Res.)].
- 1941 †SONDHI, VED PALL, M.B.E., M.Sc., F.G.S. Formerly Director-General, Geological Survey of India. C/o Ranchi Club Ltd., Ranchi, Bihar. [Telephone : 23 958]. 1971-73
- 1976 SREEKANTAN, BADANAVAL VENKATA, M.Sc., Ph.D. (Specialization : Particle & High Energy Physics, Cosmic rays). F.A.Sc., Mem. IAU. Director, Tata Institute of Fundamental Research, Bombay 400 005. Housing Colony, Homi Bhabha Road, Bombay 400 005. 1010, Colaba [Telephone : 21 9111 (Off.), 21 2305 (Res.)]. (Medal : Homi J. Bhabha Medal, 1978)
- 1950 SREENIVASAN, ARUNACHALA, M.A., D.Sc. (Specialization : Biochemistry, & Food Technology). F.A.Sc. Formerly: Head, Biochemistry, Nutrition, Food Science and Food Technology Division, Bhabha Atomic Research Centre, Bombay 400 085 and Research Director, Cancer Research Institute, Tata Memorial Centre, Bombay 400 012. Gautam Apartments, 72 Pali Hill, Bombay 400 050. [Telephone : 54 5207]. (Lecture : Bires Chandra Guha Memorial Lecture, 1972; Medal : Homi J. Bhabha Medal, 1978) 1975-77
- 1976 SRIRAMACHARI, SAMAVEDAM, M.D., D.Sc., D.Sc. (h.c., Sri Venkateswara University). (Specialization : Medical Research). F.A.M.S., F.A.Sc. Director, Indian Registry of Pathology (ICMR), Safdarjung Hospital, P. Box 4521, New Delhi 110 016. AB-1, Dr. Zakir Hussain Marg, New Delhi 110 003. [Telephone : 62 4005 (Off.), 38 2670 (Res.)].
- 1946 †SRIVASTAVA, BISHWAMBHAR NATH, D.Sc. (Specialization : Thermodynamics & Transport Phenomena). F.N.A.Sc. Formerly Professor & Head of the Department of General Physics and X-rays and Acting Director, Indian Association for the Cultivation of Science, Calcutta. 358, New Mumfordganj, Allahabad 211 002. [Telephone : 53 306].

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Election**Service on  
Council*

- 1960 SRIVASTAVA, HAR DAYAL, D.Sc. (Specialization : Zoology—Parasitology). F.N.A.Sc., F.Z.S.I., F.H.S.I., F.I.S.P. Emeritus Scientist and Principal Investigator, Helminthological Research Laboratory, Department of Zoology, University of Allahabad, Allahabad 211 002. Formerly Director & Head of the Division of Parasitology, Indian Veterinary Research Institute, Izatnagar. 393 Mumfordganj, Allahabad 211 002. [Telephone : 53 989].
- 1977 SRIVASTAVA, PRATAP NARAIN, D.Phil. (Specialization : Radiation Biology). F.R.M.S. (UK), F.L.S. (Lond.). F.N.A.Sc. Professor in School of Life Sciences, and Rector, Jawaharlal Nehru University, New Delhi 110 057. 104 New Campus, Jawaharlal Nehru University, New Delhi 110 067. [Telephone : 65 1154, 65 2282/322 & 246 (Off.), 65 0005, 65 2282/211 (Res.)].
- 1979 SRIVASTAVA, U. S. Professor and Head, Geology Department, Allahabad University, Allahabad 211 002.
- 1978 SUBBARAO, ELESWARAPU CHINNA, Ph.D. (Specialization : Materials Science/Engineering). F.A.Sc., F.I.I., Professor of Metallurgical Engineering, Indian Institute of Technology, Kanpur 208 016. 463 IIT Qrs., Kanpur 208 016. [Telephone : 44 280 (Off. & Res.)].
- 1935\* {SUBRAHMANYAN, VAIDYANATHA, D.Sc. (Specialization : Post-harvest Technology). Fellow, Royal Institute of Chemistry and Institution of Chemist (India), Hon. Member, Society of Biological Chemist, Member Institute of Food & Technologist and Association of Food Scientists and Technologists. Emeritus Scientist and Hon. Adviser to Govt. of India, and Head, Paddy Processing Research Centre, Tiruvarur, Tamil Nadu 610 108. Formerly Director, Central Food Technological Research Institute, Mysore. Govt. Inspection Bungalow, Tiruvarur. [Telephone : 575 (Off.), 329 (Res.)].
- (Lecture : Bires Chandra Guha Memorial Lecture, 1969)
- 1938, 1952-54, 1959-60

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1960	†SUBRAMANIAN, CHIRAYATHUMADOM VENKATA- CHALIER, M.A., Ph.D., D.Sc. (Specialization : Mycology & Plant Pathology). F.A.Sc. Senior Professor and Jawaharlal Nehru Fellow, Centre for Advanced Study in Botany, University of Madras, Madras 600 005. <i>No. 14, 1st Main Road, Raja Annamalaipuram, Madras 600 028. [Telephone: 84 5775/18 (Off.), 72 978 (Res.)].</i>	1970-71
1973	†SUDARSHAN, ENNACKAL CHANDY GEORGE, Ph.D., D.Sc., D.Sc. (h.c., Wisconsin & Delhi). (Specializa- tion: Particles, Quantized Fields & Dynamics Foundation). Professor of Theoretical Studies, Indian Institute of Science, Bangalore 560 012. [Telephone : 34 411/266 (Off.), 64 807 (Res.)]. <b>(Medal : S.N. Bose Medal, 1977)</b>	
1968	SUKH DEV, Ph.D., D.Sc. (Specialization: Organic Chemistry). F.A.Sc. Director, Malti-Chem. Research Centre, Nandesari 391 340, Baroda. <i>Residential Colony, Malti-Chem Research Centre, Nandesari 391 340, Baroda.</i> [Telephone : 225 (Off.), 348 (Res.)]. <b>(Medal : Vishwakarma Medal, 1979)</b>	
1943	†SUKHATME, PANDURANG VASUDEO, Ph.D., D.Sc. (Lond.) F.A.Sc. (Specialization: Demography, Food Supply & Nutrition). Honorary Professor of Biometry, Maharashtra Association for the Cultivation of Science, Law College Road, Pune 411 004. Formerly Director, Statistics of F.A.O. of United Nations, Rome. ' <i>Sankhya- darshan</i> ', 64/12 <i>Erandavana, Pune 411 004.</i> [Telephone: 56 357 (Off.), 50 103 (Res.)].	1950-51
1978	SUKHESWALA, RATAN NADIRSHAW, Ph.D. (Specia- lization : Igneous Petrology). Professor Emeritus, Department of Geology, St. Xavier's College, Bombay 400 001. ' <i>Kaku Kunj</i> ', <i>Tardeo Road, Bombay 400 007.</i> [Telephone: 26 6661 (Off.)].	
1979	SUNDARAM, CHOKKANATHAPURAM VENKATARAMAN, B.Sc. (Hons.), D.I.I-Sc. (Specialization : Extractive Me- tallurgy of Rare Metals). F.A.Sc., M.I.I.M., M.A.M.I.E. (N.Y.). Head, Metallurgy Division, Modular Labs, Bha- bha Atomic Research Centre, Trombay, Bombay 400 085. <i>8-B, Atomic Energy Officers' Apartments, Little Gibbs Road, Malabar Hill, Bombay 400 006.</i> [Telephone : 52 2996 & 52 3321 Extn. 235 (Off.), 36 4664 (Res.)].	

<i>Date of Election</i>	<i>Service on Council</i>
1975 SUNDARAM, KRISHNA, M.D. Director, Division of Life Science, International Atomic Energy Agency, P.B. No. 645, Karntner Ring 11 A-1011, Vienna, Austria.	1976-78
1974 SUNDARARAJ, BANGALORE INAMTI, M.Sc., Ph.D. (Mysore), Ph.D. (Tulane). (Specialization: Fish Endocrinology, Chronobiology). Member : Am. Assn. Anats., Am. Soc. Zool., Int. Soc. Chronobiol., Europ. Soc. Comp. Endocr. Professor of Zoology, University of Delhi, Delhi 110 007. <i>A-1/10 Model Town, Delhi 110 009.</i> [Telephone: 22 9979 (Off.), 22 5435 (Res.)].	
1938 †SUR, NALINI KANTA, D.Sc. (Specialization: Physics, Meteorology & Geophysics). Formerly Professor & Head of the Geophysics Department, Andhra University. <i>75 Tagore Town, Allahabad 211 002.</i> [Telephone : 52 172].	1941-43
1970 SURANGE, KRISHNA RAJARAM, Ph.D. (Luck.), Ph.D. (Cantab.). (Specialization: Botany, Palaeobotany). F.A.Sc. Director, Birbal Sahni Institute of Palaeobotany, Lucknow, U.P. <i>B-20, Sector 'A', Mahanagar, Lucknow 226 007.</i> [Telephone: 28 434(Off.) 81 439 (Res.)].	
1971 SUXENA, MAHENDRA RAJ, M.Sc., Ph.D. (Lond.), F.B.S. Hon. Professor of Botany, Osmania University, Hyderabad 500 007. <i>'Sukhsain', Kokatti, Hyderabad 500 002.</i> [Telephone : 71 251/244 (Off.), 42 269 (Res.)].	
1960 †SWAMINATHAN, MAHADEVA, M.A., D.Sc. (Specialization : Foods and Nutrition) Hony. Mem. Am. Inst. Nutron. Formerly Asstt. Director and Chairman, Applied Nutrition and Dietetics Department, Central Food Technological Research Institute, Cheluvemba Mansion, Food Technology, Mysore 570 013. <i>1109 Gita Road, Chamarajapuram Mysore 570 004.</i>	
1963 SWAMINATHAN, MONKOMBU SAMBASIVAN, Ph.D., D.Sc. (Specialization : Genetics, Plant Breeding, Agriculture). F.R.S., Foreign Assoc. U.S. National Acad. Sci. Director-General, Indian Council of Agricultural Research, and Secretary to the Govt. of India, Department of Agricultural Research and Education, Krishi Bhavan, New Delhi 110 001. <i>81 Shahjahan Road, New Delhi 110 011.</i> [Telephone: 38 2629 (Off.), 387 784 (Res.)]. <b>(Medal : Silver Jubilee Commemoration Medal, 1973)</b>	1967- Aug., 68 Sec. 1969-72 Ad. Mem. 1976

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- 1978 SWAMINATHAN, SAMBASIVA, B.Sc.(Hons.), A.I.I.Sc., Ph.D. (Illinois). F.A.Sc., Fellow : Br. Chem. Soc., Tamilnadu Acad. Sci. Professor of Organic Chemistry, University of Madras, Madras 600 025. *B-116, XII Cross Street, Shastrinagar, Madras 600 020.* [Telephone : 41 4323/2 (Off.), 41 1858 (Res.)].
- 1975 SWARUP, GOVINDA, Ph.D. (Specialization : Radio Astronomy). F.I.A.Sc., F.R.A.S. Professor, Radio Astronomy Centre, Tata Institute of Fundamental Research, Ootacamund 643 001. *Lynton Bungalow Fingerpost, Ootacamund.* [Telephone : 2651 (Off.), 2652 (Res.)].
- 1979 SWARUP, HAR, M.Sc., Ph.D., D.Phil. (Oxon). (Specialization : Fishes — Developmental Biology and Endocrinology). F.N.A.Sc., F.Z.S.I., F.A.Z. Vice-Chancellor, Jiwaji University, Vidya-Vihar, Gwalior 474 002. *Vice-Chancellor's Bungalow, University Campus, Jiwaji University, Gwalior 474 002.* [Telephone : 22 450 (Off.), 21 246 (Res.)].
- 1974 †TALWAR, GURSARAN PRASAD, D.Sc. (Specialization : Endocrinology, Immunology, Biochemistry). F.A.M.S., F.A.Sc. Professor & Head of the Department of Biochemistry and Head, ICMR-WHO Research & Training Centre in Immunology, Department of Biochemistry, All-India Institute of Medical Sciences, New Delhi 110 016. *C1/8 Ansari Nagar, New Delhi 110 016.* [Telephone : 66 2523 (Off.), 66 4419 (Res.)].  
(Medal : Sunder Lal Hora Medal, 1978)
- 1979 TANDON, PRAKASH NARAIN., Professor and Head, Department of Neuro-Surgery, All India Institute of Medical Sciences, New Delhi 110 016. *C1/1, Ansari Nagar, New Delhi-110 016* [Telephone : 661123/ 226 (Off.), 660018 (Res.)].
- 1964 TANDON, RAM NARAYAN, Ph.D., D.I.C. (Specialization : Mycology and Plant Pathology). F.A.Sc., 1966-67, F.N.A.Sc., F.P.S.I. Formerly Professor & Head of the 1976-77 Department of Botany, Allahabad University, Allahabad 211 002. *9, Edmonston Road, Allahabad 211 001.* [Telephone : (Res.) 51 358]. Ad.Mem.

<i>Date of Election</i>	<i>Service on Council</i>
1942 †TAWDE, NANASAHEB RAMJI, M.Sc., Ph.D. (Specialization : Optical Spectroscopy & Molecular Physics). F. Inst. P. (Lond.), F. I. Nuc. E.(Eng.), F.A.Sc. Ex-Vice-Chancellor, Marathwada University. 2 Udaynagar, Near Samarthyagar, Aurangabad 431 001. [Telephone : 3435].	1953-55, 1957-59, 1962-64
1953 THACKER, MANEKLAL SANKALCHAND, B.Sc. (Bristol), D.Sc. (h.c.), D. Engg. (h.c.), D. Litt. ( h.c.). (Specialization : Electrical Power Engineering). F.A.Sc., Hon. F.I.E. (India), Hon. F.S.E. (U.K.), F.I.E.E. (U.K.), F.I.E.E.E. (U.S.A.), Hon. F.I. Mech. E.(India), Hon. F.I.E.T.E., F.I.S.I., Hon. M. Assocn. Consult. Engr. (India), Hon. M. Inst. Consult. Engr., Hon. F.I.Sr. (India), Hon. M.E. R.A. (U.K.). [Formerly: Director, Indian Institute of Science, Bangalore: Director-General, Council of Scientific and Industrial Research; Secretary to the Government of India, Ministry of Scientific Research and Cultural Affairs; Member, Planning Commission]. A-2, Sea Face Park, Bhulabhai Desai Road, Bombay 400 026. [Telephone : 36 6983 (Res.)].	Ad. V.P. 1954-56 1957- Govt. Res.
1952 THAPAR, GOBIND SINGH, M.Sc. (Panj.), Ph.D. (Lond.). (Specialization : Helminthology, including Trematoda, Cestoda, Nematoda, Acanthocapla). Formerly Professor of Zoology, Lucknow University. Lucknow 226 007. 227, Mahatma Gandhi Road, Dilkusha, Lucknow 226 002. [Telephone : 51 662].	
1978 THAPLIYAL, JAGDAMBA PRASAD, Ph.D. (Specialization : Comparative Endocrinology & Embryology). F.N.A.Sc. Co-ordinator School of Life Sciences, Banaras Hindu University, Varanasi 221 005 DR-G/2, Jodhpur Colony, B.H.U. Varanasi 221 005. [Telephone : 54 290/534 (Off.)].	
1969 †THIND, KARTAR SINGH, Ph.D. (Specialization : Mycology and Plant Pathology). F.A.Sc., F.N.A.Sc., F.P.S.I., F.B.S. Senior Professor (Mycology and Plant Pathology), Deptt. of Botany, Panjab University, Chandigarh 160 014. 2086, Sector 15C, Chandigarh 160 017. [Telephone :25 881 (Off.)].	

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- 1956 THIRUMALACHAR, MANDAYAM JEERSANNIDHI, 1969-71  
 D.Sc., Ph.D. (Wis.). (Specialization : Antibiotics & Medical Mycology). Visiting Professor, Department of Pediatrics, University of Minnesota, 1460 Mayo, Memorial Building, 420 Delaware Street S.E., Minneapolis, Minnesota 554 55, Canada. [Telephone : 16 127 373 8114].
- 1960 THIRUVENKATACHAR, VENKATAINCHATRAM RANGACHAR, D.Sc. (Specialization : Applied Math. & Mathematical Physics). Formerly Deputy Chief Scientific Officer, Research and Development Organization, Ministry of Defence, Govt. of India. C/o Shri C. Rajagopal, 222 Sreepuram, Bangalore 560 020. [Telephone : 34 263 (Res.)].
- 1977 THOSAR, BAJI VINAYAK, Ph.D. (Specialization : Nuclear Physics). F.A.Sc. Emeritus Professor, Tata Institute of Fundamental Research, Bombay 400 005. C-2, Jeevan Bimanagar, Borivli, West Bombay 400 092. [Telephone : 21 9111 (Off.). 66 5277 (Res.)].
- 1962 TILAK, BAL DATTATRAYA, Ph.D. (Tech.), D. Phil. 1972-74  
 (Oxon.), D.Sc. (Oxon.). (Specialization: Org. Chemistry, Technology & Dyestuff Technology). Formerly Director, National Chemical Laboratory, Pune 411 008.
- 1943 †TOSHNIWAL, GOVIND, RAM, D.Sc. (Specialization : Instrumentation for Research, Industry & Teaching). Sen. Mem. I.E.E.E. (N.Y.), Fellow I.E.T.E. Chairman & Managing Director, Toshniwal Industries Pvt. Ltd., Industrial Estate, Ajmer 305 002. Todarmal Marg, Ajmer 305 001. [Telephone : 21 020 & 21 071 (Off.), 20 727 & 20 925 (Res.)].
- 1976 †TREHAN, SURINDER KUMAR, Ph.D. (Specialization : Magnetohydrodynamics and Plasma Physics). F.A.Sc., Ed. Pub. F.N.A.Sc. Professor of Applied Mathematics, Panjab University, Chandigarh 160 014. 146, Sector 9B, Chandigarh 160 009. [Telephone : 25 142 (Off.), 29 938 (Res.)].

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Election**Service on  
Council*

- 1943 †TRIBEDI, B.P., M.B., D.B. (Lond.). (Specialization : Pathology, Microbiology, Medical Education & Research). F.S.M.F. (W.B.). 93, Park Street, Calcutta 700 016.
- 1961 TRIVEDI, HRISHIKESH, D.Sc. 173, Kidwai Nagar, 1973-75 N Block, Kanpur 208 011. [Telephone : 7 225 (Res.)].
- 1971 UDUPA, HANDADY VENKATAKRISHNA, M.A. M.Sc., 1976-78 (Madras) A.M. (Columbia), Ph.D. (Ohio), C. Chem. (Specialization : Chemistry, Industrial Chemistry & Electrochemistry). M.R.I.C., F.I.C. Mem. Phi, Lamda Upsilon, Fellow of SAEST, Mem. ISE. Director, Central Electrochemical Research Institute, Karaikudi 623 006. S-9, S-Road, Cecrinagar, Karaikudi 623 006. [Telephone : 588 (Personal), 564 (Off.), 561 (Res.)].
- 1944 †UPPAL, BADRI NATH, Ph.D., D.Sc. (h.c.), (Specialization : Plant Pathology, Microbiology and Agriculture). F.A.Sc. Part-time Member, State Planning Board, Punjab. Formerly Agricultural Commissioner with the Govt. of India, New Delhi. 223, Sector 9-C, Chandigarh 160 009. [Telephone : 26 203].
- 1952 †UPPAL, HARBANS LAL, Ph.D. D.Sc.] (Specialization : Civil and Hydraulic Engineering). F.I.E. Emeritus Professor, Department of Soils, Panjab Agricultural University, Ludhiana, and Irrigation Adviser to the Government of Punjab. Consultant, Floods, J & K, Consultant, Sediment Problem, Damodar Valley Corporation. 8/37, Panjab Agricultural University, Ludhiana 141 004. [Telephone : 22 960/201 (Off.), 22 960/289 (Res.)].
- 1942 †VACHELL, EUSTACE TANFIELD, M.A. (Cantab.). F.G.S., F.Inst.Pet., F.S.A., M.M.G.I. (Specialization : Petroleum Geology). Formerly Sr. Geologist India, The Burmah Oil Co. Ltd. Coley, 6 Lydwell Road, Torquay, Devon, England, TQ 1 ISN. [Telephone: 24 428].

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Council*

- 1977 †VAIDYANATH, LAKSHMINARAYANAPURAM RAMIER, Ph.D. (Specialization : Metallurgical Engineering). F.I.M. (Lond.). Director, Indian Copper Information Centre, 27-B, Camac Street, Calcutta 700 016. 8, Sarat Chatterjee Avenue, Calcutta 700 029. [Telephone : 44 5724 & 25 (Off.), 41 1447 (Res.)].
- 1950 †VASUDEVA, RAGHUNATH SAHAI, D.Sc. (Lond.), Ph.D. (Lond.), D.I.C. (Specialization: Plant Pathology). F.P.S.I., Mem. Assoc. Appl. Bio. (UK). Formerly Jt. Director, Indian Agricultural Research Institute, New Delhi, and Agricultural Adviser, F.A.O. E-14/3, Vasant Vihar, New Delhi 110 057. [Telephone : 67 1714].
- 1977 VENKATARAMAN, GANESAN, Ph.D. (Specialization: Solid State Physics). F.A.Sc. Principal Physicist, Reactor Research Centre, Kalpakkam 603 102, 4, Fifth Avenue. DAE Township, Kalpakkam-603 102, Tamilnadu. [Telephone : 91 (Off.), 75 (Res.)].
- 1939 †VENKATARAMAN, KRISHNASAMI, Ph.D., D.Sc., 1943-45,  
D.Sc. (h.c., Mendeleev Institute of Technology, 1952-53,  
Moscow). (Specialization: Organic Chemistry). Foreign 1955-56,  
Member, USSR Academy of Sciences, Hon. Member, 1958-59  
Polish Chemical Society. Formerly, Director National V.P.  
Chemical Laboratory, Pune 411 008. 15 Yeshwantnagar, 1975-76  
Pune 411 007. [Telephone : 58 399 (Res.)].  
(Medal : Professor T. R. Seshadri Seventieth Birthday  
Commemoration Medal, 1973)
- 1970 VENKATESWARLU, PUTCHA, M.Sc., D.Sc. (Specialization: Atomic, Molecular & Solid State Physics, Spectroscopy & Lasers). F.A.Sc. Professor of Physics, Indian Institute of Technology, Kanpur 208 016. [Telephone: 45 833 (Off.)].
- 1955 VENKITESHWARAN, SEKHARIPURAM PADMANABHIER, M.A. (Specialization: Earth Sciences, including Instrumentation). F.A.Sc., M.I.T.E. Technical Adviser, Radio Refractive Index Project, Tata Institute of Fundamental Research, ECIL Post Office, Hyderabad 500 762. Formerly Deputy Director-General of Observatories, and Assistant Director, National Aeronautical Laboratory, Bangalore. 12-5-27 Vijaipuri, Tarnaka, Secunderabad 500 017. [Telephone : 78 265 (Off.), 71 947 (Res.)].

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Election**Service on  
Council*

- 1963 VERMA, AJIT RAM, Ph.D., D.Sc. (Specialization: Solid State Physics & Crystallography). F.N.A.Sc., F.A.Sc. Director, National Physical Laboratory, Hillside Road, New Delhi 110 012. *Director's Bungalow, NPL, Hillside Road, New Delhi 110 012.* [Telephone: 581440 (Off.), 58 7801 (Res.)]. Treas. 1973-76 F.Sec. 1977-
- 1946 †VERMAN, LAL CHAND, B.S. Eng. (Michigan), M.S., Ph.D. (Cornell), F.I.E.I., F.I.E.T.E., F.A.S.T.M. (Specialization : Standardization and Electronics . Industrial Consultant. Formerly Director-General, Indian Standards Institution. 2A, Friends, Colony West, New Delhi 110 014. [Telephone : 63 0542].
- 1973 †VIG, OM PARKASH, Ph.D. (Specialization : Synthesis of Natural Products). Professor of Organic Chemistry, and Head of the Chemistry Department, Panjab University, Chandigarh 160 014. F-10, Sector 14, Chandigarh 160 014. [Telephone: 25 035 (Off.)].
- 1969 VISWANATHAN, RAMAN, M.B.B.S., M.D. (Madras), M.R.C.P. (Lond.), T.D.D. (Wales), F.C.C.P. (USA) (Specialization : Chest Diseases). Emeritus Scientist & Professor, Vallabhbhai Patel Chest Institute, University of Delhi, Delhi 110 007. L-22 Hauz Khaz Enclave, New Delhi 110 016 [Telephone : 22 7017 (Off.), 66 6682 (Res.)].  
**(Prize : Shree Dhanwantari Prize, 1971)**
- 1957 WAHI, PREM NATH, M.D., D.Sc. (*h.c.*). (Specialization: Pathology, Epidemiology, Cancer, Medical Education). F.R.C.P. (Lond.), F.C. Path. (Lond.), F.A.M.S., F.I.A.C. (Hon.). Executive Director, Indian Association for Advancement of Medical Education, and Consultant Pathologist, Sir Ganga Ram Hospital, New Delhi. Formerly Director-General, Indian Council of Medical Research, New Delhi. 41 Masjid Moth Extension, Near Neeti Bagh, New Delhi 110 049. [Telephone : 69 4097].  
**(Lecture : Bashambar Nath Chopra Memorial Lecture, 1971)**

<i>Date of Election</i>	<i>Service no Council</i>
1935*‡WEST, WILLIAM DIXON, C.I.E., M.A., Sc.D. (Cantab). D.Sc. ( <i>h.c.</i> , Saugar and I.S.M., Dhanbad). (Specialization : Deccan Trap Vulcanicity) F.G.S., F.A.S., F.N.A.Sc. Emeritus Professor and Project Director, M.P. Ground Water Development Project, Department of Applied Geology, University of Saugar, Sagar 470 003. <i>B-5, Gour Nagar, Sagar, M.P.</i> [Telephone : 2941 ( <i>Off.</i> )].	1947-48, 1958-60, 1963-65 Ad. Mem. 1935-40, Ad. V.P. 1941-44, 1946, 49 Sec. 1945
1974 ZAIDI, SIBTE HASAN, M.B.B.S., Ph.D. (Lond.), D.C.P. (Lond.). (Specialization: Toxicology and Pathology). F.R.C. Path. (Lond.), F.N.A.Sc., F.A.M.S. Director, Industrial Toxicology Research Centre, Post Box No. 80, Mahatma Gandhi Marg, Lucknow 226 001. <i>B-85, Nirala Nagar, Lucknow.</i> [Telephone: 22 787 ( <i>Off.</i> ), 81 416 ( <i>Res.</i> )].	

\*Foundation Fellows.

†Compounding fee paid for all future subscriptions.

‡Paid subscription for 30 years.

#### Abbreviations used :

*Ad. Mem.*, Additional Member;  
*Ad. V.P.*, Additional Vice-President;  
*Ed. Pub.*, Editor of Publications;  
*F. Sec.*, Foreign Secretary;  
*Govt. Rep.*, Government Representative;

*Pres.*, President;  
*Sec.*, Secretary;  
*Treas.*, Treasurer;  
*V.P.*, Vice-President.

## FOREIGN FELLOWS

### Date of Election

- 1976 ALFVEN, HANNES OLOF GÖSTA, Professor, Plasma Physics, Royal Institute of Technology, Stockholm 70, Sweden. Memb: Roy. Swed. Acad., Sci., Akademia Nauk, USSR; Yugoslav. Acad. Sci.; Am. Acad. Arts and Sci.; Nat. Acad. Sci., USA. [Telephone : 787 7691 (Off.), 756 4784 (Res.)].
- 1977 AMBARTSUMIAN, VIKTOR HAMAZASPI, Professor, Academician. (Specialization : Theoretical Astrophysics). President, Academy of Sciences, Armenian Soviet Socialist Republic, Barekamutyan, 24, Yerevan, USSR, and Director, Byurakan Observatory, [Telephone : 52-45-80].
- 1976 BARDEEN, JOHN, Ph.D. (Princeton). (Specialization : Physics Condensed Matter), Nobel Laureate. Fellow American Physical Society, Member Nat. Acad. Sci. USA, F. Mem. R.S. Japan Academy. Professor Emeritus of Electrical Engg. and of Physics, University of Illinois, Urbana, Illinois 61801, USA. 55 Greencroft, Champaign, Ill. 61820, U.S.A. (Telephone : 217-333-3618 (Off.), 217-352-6497 (Res.)].
- 1978 BARTON, SIR DEREK (HAROLD RICHARD). (Specialization : Natural Products Chemistry). Professor of Organic Chemistry, Imperial College of Science and Technology, Imperial Institute Road, London, SW7, U.K. Director, Institut de Chimie des Substances Naturelles, 911 90 Gif-sur-Yvette, France. [Telephone: Paris : 907 7828 (Off.)].
- 1970 BEADLE, GEORGE WELLS, Ph.D., Mem. U.S. Natl. Acad. Sci., Mem. Philosoph. Soc. President Emeritus and Professor of Biology (Specialization : Genetic Research). University of Chicago, Chicago. Apt. 401, 1700 East, 56th St., Chicago, Illinois. 60 637, USA. [Telephone : 493-2119].

*Date of  
Election*

- 1973 BELOUSSOV, VLADIMIR VLADIMIROVITCH, Correspondent-Member, Academy of Sciences of the USSR; Foreign Member: Royal Academy of Sciences of Sweden; Royal Astronomical Society of London, Geological Society, London; Geological Society of America; Geological Society of India; Geophys. Society of India; and Geological Society of France. Head of Departments of Global and Marine Geophysics, Institute of Physics of the Earth. D-242, Bolshaia Grouzinskaia-10, Moscow, USSR. Professor, Moscow State University. Chairman, Soviet Geophysical Committee.
- 1978 BLAMONT, Jacques Emile, D.Sc. Professor, University of Paris; Chief Scientist, French Space Agency (CNES), CNES, 129, rue de l' Universite, 7 Villa Scheffer 75 016, Paris. [Telephone : 870 52-65].
- 1973 BORLAUG, NORMAN ERNEST, Ph.D., Nobel Laureate, Director, International Wheat Improvement Programme, International Maize and Wheat Improvement Centre, Londres 40, Apdo Postal 6-641, Mexico 6 DF, Mexico. [Telephone : 5-85-43-55 (Off.)].
- 1960 BOVET, DANIEL, Nobel Laureate. Professor, Psychobiology, Faculty of Sciences, University of Rome, Piazza—S. Apollinare 00186 Roma, Italia. [Telephone : 6565297 (Off.)].
- 1949 BROGLIE, LOUIS DE, D.Sc., F. Mem. R.S., Nobel Laureate, Secretaire perepetuel 'de l' Academic des Sciences, 94 rue Perronet, Neuillysur Seine, France.
- 1978 BROWN CHARLES, HERBERT, B. S., Ph.D., D.Sc. (Specialization: Organic Chemistry). Mem. : Natl. Acad. Sci., Am. Acad. Arts Sci., Am. Chem. Soc., and Hony. Fellow Chem. Soc. (Lond.). Weather Research Professor, Purdue University, W. Lafayette, Indiana, U.S.A. 47907. 1840 Garden St., West Lafayette, Indiana 47906. U.S.A. [Telephone: (317) 494-8765 (Off.), (317) 463-5651 (Res.)].

*Date of  
Election*

- 1947 BURN, JOSHUA HAROLD, M.D., Hon. Sc.D. (Yale), Hon. M.D. (Mainz), Dr. Hon. Causa (Paris), Hon. D.Sc. (Bradford). F.R.S. Hon. Mem. of Br. Pharmac. Soc., Deutsch Pharmak, Gesselschaft. Honorary President of the International Union of Pharmacology, 1975. Emeritus Professor of Pharmacology, University of Oxford, 3 Squitchev Lane, Oxford, England. [Telephone : 58209].
- 1977 CAREY, SAMUEL WARREN, D.Sc. D.Sc. (*h.c.*, Papua-New Guinea). Professor & Head of the Department of Geology, University of Tasmania, Hobart. 24 Richardson Avenue, Dynnynrne 7005, Tasmania, Hobart, Australia. [Telephone : 23 6985].
- 1955 CHAIN, SIR ERNST (BORIS), F.R.S. (Specialization : Biochemistry). Nobel Laureate. Department of Mechanical Engineering, Imperial College, London, S.W. 7, England. [Telephone : 589-5111 (*Off.*), 947-2235 (*Res.*)].
- 1962 CHANDRASEKHAR, SUBRAHANYAN, F.R.S. Morton D. Hull Distinguished Service Professor in the University of Chicago, Laboratory for Astrophysics and space Research, 933 East 56th Street, Chicago, Illinois 60637, USA. 5825 S, Dorchester Avenue, Chicago, Illinois 60637, USA. [Telephone : 312-753-8562 (*Off.*), 312-752-3011 (*Res.*)].  
**(Medal : Srinivasa Ramanujan Medal, 1962)**
- 1947 DIRAC, PAUL ADRIEN MAURICE, F.R.S., Nobel Laureate. St. John's College, Cambridge, England. *C/o Scientific Periodicals Library, Benet Street, Cambridge, England CB2 3 PY.*
- 1954 ENGELHARDT, VLADIMIR ALEXANDROVITCH, Director, Institute of Molecular Biology, Academy of Sciences of the USSR, Vavilov St., 32 Moscow B-312, USSR.
- 1979 HADZI, DUSAN, Ph.D. (Chemistry). (Specialization : Molecular Structure, Spectroscopy). F. Slovenian A.Sc., C.F. Yugoslav A.Sc. Professor of Structural Chemistry, University of Ljubljana, Director of Research, Chemical Institute, Ljubljana, Yugoslavia. Chemical Institute 'Boris Kidric', Hajdrihova 19, YU-61001 Ljubljana, P.O.B. 380. Teslova 2, YU-61000 Ljubljana. [Telephones : (061)-263061 (*Off.*), (061)-23060 (*Res.*)].

*Date of  
Election*

- 1977 HAMMOND, GEORGE S., Ph.D. (Specialization: Photochemistry). Mem. Natl. Acad. Sci., USA, Am. Chem. Soc., Am. Acad. Sci. Associate Director of Corporate Research, Allied Chemical Co., Morristown, NJ 07960, 43 Noe Ave., Madison, NJ 07940. [Telephone : 201-455-2449 (Off.), 201-377-9279 (Res.)].
- 1976 HANBURY-BROWN, ROBERT, D.Sc., F.A.A., F.R.S. (Specialization : Astronomy and Optics). Professor of Physics, University of Sydney, Sydney, N.S.W. 2006, Australia, 37, Beatty St., Balgowlah, NSW 2093, Australia. [Telephone : 669-2934 (Off.), 942697 (Res.)].
- 1954 HEISENBERG, WERNER, F. Mem. R.S., Nobel Laureate. Max-Planck-Institute fur Physik und Astrophysik, Fohringer-Ring 6, 8-Munchen 40, West Germany.
- 1974 HERZBERG, GERHARD, Dr. Ing., F.R.S. (Specialization: Molecular Spectroscopy). Nobel Laureate. Distinguished Research Scientist, National Research Council of Canada, Sussex Drive, Ottawa, K1A OR6 Canada. 190 Lakeway Drive, Ottawa, Ontario, K1L 5B3, Canada. [Telephone: 613-992-2350 (Off.), 746-4126 (Res.)].
- 1975 HESLOP-HARRISON, JOHN, M.Sc., Ph.D., D Sc. F.R.S., F.R.S.E., F.L.S., M.R.I.A. (Specialization : Plant Physiology & Cytogenetics). Royal Society Research Professor. Welsh Plant Breeding Station, Plas Gogerddan, Aberystwyth, United Kingdom. Formerly Director, Royal Botanic Gardens, Kew, England. Old Post, Hatfield, nr. Leominster, Herefordshire, U.K.
- 1972 HODGKIN, SIR ALAN LLOYD, O.M., K.B.E. Sc.D., F.R.S., Nobel Laureate. Master of Trinity College, Cambridge, Professor Biophysics, Physiological Laboratory, University of Cambridge, Cambridge. [Telephone : 64 131].

*Date of  
Election*

- 1977 HOLLAENDER, ALEXANDER, (Specialization : Radiation Biology, Chemical Mutagenesis). Senior Research Adviser and Retired Director, Biology Div., Oak Ridge National Laboratory, Oak Ridge, Tennessee, and Scientist & Consultant, Associated Universities Inc. 2540 Massachusetts Avenue, N.W., Washington, D.C., 20008, USA. [Telephone: 202-462-4475(Off.), 202-332-0477(Res.)].
- 1974 HUTCHINSON, SIR JOSEPH (BURTT), F.R.S. (Specialization : Crop Evolution). Royal Medal of Royal Society, London. Emeritus Professor of Agriculture, Cambridge University; now Professor Fellow, St. John's College, Cambridge, Huntingfield, Huntingdon Road, Cambridge CB3 OLH, England. [Telephone : 61 621 (Off.), 76 272 (Res.)].
- 1956 KAPITZA, PETER, Ph.D., F.R.S. Director, Institute for Physical Problems, Academy of Sciences, Moscow USSR.
- 1972 KHORANA, HAR GOVIND, Nobel Laureate. Department of Biology and Chemistry, Massachusetts Institute of Technology, 77, Massachusetts Avenue, Cambridge, Massachusetts 02139, USA.
- 1958 KIHARA, HITOSHI, D.Sc. (Kyoto Univ.). (Specialization: Genetics). For. Mem. Am. Acad. Sci. Director, Kihara Institute for Biological Research, 122 Mutsukawa-3, Minami-Ku, Yokohama, 232 Japan. [Telephone : (045) 741-5082 (Off.), (045)741-5081 (Res.)].
- 1974 KOVDA, VICTOR ABRAMOVICH, Academician (Specialization: Soil Science, Environment and Biosphere). Professor of Soil Science, Faculty of Soil Science of Moscow State University, Director of Institute of Agrochemistry and Soil Science of the Academy of Sciences of the USSR, Moscow USSR. Apartment 6, Bldg. L, Moscow State University, Moscow, USSR. [Telephone: 3-37-49 (Off.), 139-14-74 (Res.)].
- 1956 KREBS, SIR HANS (ADOLF), F.R.S., Nobel Laureate. (Specialization : Metabolic Biochemistry). Emeritus Professor of Bio-Chemistry, University of Oxford, Metabolic Research Lab., Nuffield Dept. of Medicine, Radcliffe Infirmary, Oxford, 27, Abberbury Rd. Oxford, England. [Telephone: 49 891 (Off.), 77 7537 (Res.)].

*Date of  
Election*

- 1970 LIGHTHILL, SIR JAMES, Lucasian Professor, Department of Applied Mathematics and Theoretical Physics, Silver Street, Cambridge, U.K. [Telephone: 0223-51645].
- 1952 MARK, HERMAN FRANCIS. Dean Emeritus, Polytechnic Institute of Brooklyn, 333 Jay Street, Brooklyn, New York 11201, USA.
- 1975 MITCHELL, JOSEPH STANLEY, C.B.E., M.A. (Cantab.), Ph.D. (Cantab.), M.D. (Cantab.), D.Sc. (*h.c.*, Birmingham), F.R.C.R., F.R.C.P., F.R.S. (Specialization : Oncology and Radiotherapy). Emeritus Regius Professor of Physics, University of Cambridge, Research Laboratories, The Radiotherapeutic Centre, Addenbrooke's Hospital, Hills Road, Cambridge, CB2 2QQ. 'Thorndyke', Huntingdon Road, Cambridge, CB3 OLG, England. [Telephone: 43 619 (Off.), 76 102 (Res.)].
- 1976 MOSSBAUER, RUDOLF (Specialization : Physics). Professor of Experimental Physics, Technical University, Munich, West Germany. [Telephone : 320-92-511].
- 1977 NEERGAARD, PIERRE PAUL FERDINAND MOURIER de., D.Sc., F.A. Esp. F.N.A.Sc. (Specialization : Plant Pathology, Mycology). Director, Danish Government Institute of Seed Pathology for Developing Countries, Ryvangsalle 78, DK-2900 Hellerup, Copenhagen, Denmark. Gothersgade 158, 1123 Copenhagen K, Denmark. [Telephone : 45 1 621213 (Off.), 45 1 31969 (Res.)].
- 1956 NESMEYANOV, ALEXANDER NIKOLAEVICH, Academician. (Specialization : Organic Chemistry). Mem. Chem. Soc., Soc. Chem. Industry, Chem. Soc. (Lond.), Edin. Roy. Soc. and Roy. Soc. (Lond.). Director, Institute of Organo-Element Compounds, Academy of Sciences of the USSR, 28 Vavilova St., Moscow, USSR.
- 1978 OCHOA, SEVERO, M.D., Hon. D.Sc. (Specialization Biochemistry and Molecular Biology). Foreign Member R.S., Mem. U.S. Natl. Acad. Sci. Professor of Biochemistry. New York Univ. School of Medicine, Distinguished Member, Roche Institute of Molecular Biology, Nutley, New Jersey-07110, U.S.A. 530 East, 72nd Street, New York, N.Y. 10021, U.S.A. [Telephone : (201) 235-3790 (Off.), (212) 879-1480 (Res.)].

*Date of  
Election*

- 1977 ODHIAMBO, THOMAS RISLEY, M.A., Ph.D. Director, International Centre of Insect Physiology and Ecology (ICIPE), P.O. Box 30772, Nairobi, Kenya; and Professor of Entomology, University of Nairobi, P.O. Box 30 197 Nairobi Kenya. [Telephone : 43 235 (Off.), 56 6383 (Res.)].
- 1957 PAULING, LINUS CARL, Sc.D., Ph.D., F.Mem. R.S., Nobel Laureate (Chemistry), Nobel Laureate (Peace). *Salmon Creek, Big Sur, California 93920, U.S.A.*
- 1979 PONNAMPERUMA, CYRIL, D.Sc., Ph.D. (Specialization : Chemical Evolution). Professor of Chemistry, Director, Laboratory of Chemical Evolution, University of Maryland College Park, Maryland, 20742 U.S.A. 4452 Sedgwick Street, N.W. Washington, D.C. 20016. U.S.A. [Telephone : (301)-454-4059(Off.), (202)-362-5325 (Res.)].
- 1979 PRIGOGINE, ILYA, Faculty of Science, Free University of Brussel, 1050, Brussel, Belgium. 67, Avenue Fond' Roy, 1180, Brussel, Belgium. [Telephone: 640 0015 Ext. 5540].
- 1968 REICHSTEIN, TADEUS, Dr. Ing. Chem., F. Mem. R.S., Nobel Leureate. (Specialization : Botany—ferns). Institute für Organische Chemie der Universität,, St. Johans-Ring 19, Ch-4056 Basel, Switzerland. [Telephone : 061-449 090 (Off.), 34 6412 (Res.)].
- 1976 RILEY, RALPH, D.Sc., F.R.S. Secretary Agricultural Research Council, 6160 Great Portland Street, London WIN 6DT, England. [Telephone : Trumpington 241 (Code 022 021 2411)].
- 1967 SANGER, FREDERICK, C.B.E., Ph.D., F.R.S., Nobel Laureate. Medical Research Council Laboratory of Molecular Biology, University Postgraduate Medical School, Hills Road, Cambridge, CB2 2QH, England. [Telephone : 48 011].

*Date of  
Election*

- 1977 SCHWARTZ, LAURENT, D.Sc. (*h.c.*), University Humboldt, Berlin; Universite Libre de Bruxelles, Belgique), Mem. Corr. Acad. Sci., Brazil, Mem. Acad. Sci. France, Hon. Mem., Acad. Sci., Argentine, Royal Soc. Sci., Liege. (Specialization : Mathematical Analysis). Ecole Polytechnique, Centre de Mathematiques, Plateau de Palaiseau 911 28 Palaiseau Cedex, Palaiseau, France. 37, rue Pierre Nicole, Paris 5, France. [Telephone : 941-8200 (*Off.*), 354-5040 (*Res.*)].
- 1946 SELYE, HANS, C.C., M.D., Ph.D., D.Sc. (Hon.), M.D. (Hon.), L.L.D. (Hon.), F.R.S.(C), F.I.C.S. (Hon.). (Specialization : Stress Research). President of the International Institute of Stress, Montreal, Que. Emeritus Professor, Universite de Montreal, Montreal, Quebec, Canada. 659 Milton St., Montreal, Quebec, Canada. H2X W6 [Telephone : 343-6379 (*Off.*), 288 6665 (*Res.*)].
- 1960 SHOCKLEY, WILLIAM BRADFORD, Nobel Laureate. 202 McCulloch Building, Standford University, Stanford, California 94305, USA. [Telephone : 497-4675].
- 1950 SIEGBAHN, KARL MANNE GEORG, F.Mem.R.S., Nobel Laureate. Research Institute for Physics, 104 05 Stockholm 50, Sweden. [Telephone : 08/15 0360].
- 1977 SULTANBAWA, MOHAMMED UVAVIS SIDDEEK, Ph.D., D.Sc. (*Lond.*). (Specialization : Organic Chemistry). F.R.I.C. Professor & Head of the Department of Chemistry, University of Sri Lanka, Peradeniya Campus, Peradeniya, Sri Lanka. C61 Augusta Hill, University Campus, Peradeniya, Sri Lanka. [Telephone : 08-8301-300 (*Off.*), 08-8301-373 (*Res.*)].
- 1947 SZENT-GYORGY, ALBERT, M.D., Ph.D., Nobel Laureate. Marine Biological Laboratory, P.O. Box 1879, Woods Hole Massachusetts, USA.
- 1978 TATA, JAMSHED RUSTOM, D.es-Sc. (Specialization : Molecular & Developmental Biology). F.R.S. Head of Laboratory of Developmental Biochemistry, National Institute for Medical Research, The Ridgeway, Mill Hill, London, NW 7 IAA, UK. 15 Bittacy Park Avenue, London NW7 2HA, U.K. [Telephone : (01) 959-3666 (*Off.*), (01) 346-6291 (*Res.*)].

*Date of  
Election*

- 1971 TODD, ALEXANDER ROBERTUS, O.M. F.R.S., Nobel Laureate. University Chemical Laboratory, Lensfield Road, Cambridge, England. 9 Parker St. Christ's College Cambridge, England. [Telephone : 67641 (Off.), 56688 (Res.)].
- 1979 TOMONAGA, SIN-ITIRO, D.Sc. (Specialization: Physics, Quantum Theory), M.J.A., For.M.A.Sc. Sweden, For.M.A.Sc. Bavalia, For.M.A.Sc. Leopoldina, For.M.A.Sc. US., For.M.A.Sc. USSR., For.M.A.Sc. Denmark, For.F.A.Sc. India, Emeritus Professor of Physics, Tokyo University of Education, c/o Tsukuba University, 1-1 Ten-nodai Sakuramura, Niharigun Ibaragi Prefecture. 3-17-12 Kyonancho, Musashino-City, 180 Tokyo. [Telephone : 0422-32-2410 (Res.)].
- 1947 UREY, HAROLD CLAYTON, F. Mem. R.S., Nobel Laureate. University Emeritus Professor of Chemistry, University of California, San Diego, La Jolla, California 920 93, USA.
- 1974 WEIL, ANDRE, Professor of Mathematics, Institute of Advanced Study, Princeton, N.J., USA.
- 1975 WOODWARD, ROBERT BURNS, A.M., B.S., Ph.D. (Specialization : Organic Chemistry). Nobel Laureate. Mem.: Natl. Acad. Sci.; German Chem. Soc.; Roy. Soc.; Roy. Irish Acad.; Austrian Acad. Sci.; Am. Phil. Soc.; Belgian Chem. Soc.; Harvey Soc. New York; Swiss Chem. Soc.; Deutsche Akad. Naturforscher [Leopoldina]; Accademia Nazionale dei Lincei; Pharm. Soc. Japan; Pharm. Soc. Great Britain; New York Acad. Sci.; Roy. Inst. Great Britain; Acad. Sci. Soc. U.S.S.R.; Yugoslav Acad. Sci. Arts; Phi [Lambda Upsilon [National Honorary Chemical Society]]; Acad. Sci. Inst. France; Spanish Roy. Soc. Physics and Chemistry; Fellow: Am. Acad. Arts, Sci.; Chem. Soc.; Indian Acad. Sci.; Weizmann Inst. Sci.; Indian Chem. Soc.; Roy. Soc. Edin.; Donner Professor of Science, Harvard University, U.S.A. [Telephone : (617) 495-4081].
- 1957 YUKAWA, HIDEKI, D.Sc., F. Mem. R.S., Nobel Laureate. Research Institute for Fundamental Physics, Kyoto University, Kyoto, Japan.

## **FELLOWS ELECTED (1978)**

*(Effectuated from 1 January 1979)*

**BARNABAS, JOHN**, Professor & Head, Post-Graduate School for Biological Studies, Ahmednagar College, Ahmednagar.

Distinguished for his outstanding contributions in the field of evolutionary genetics by deciphering the record of phylogeny contained in the primary structure of hemoglobins of contemporary mammalian species.

**BHAKUNI, D. S.**, Scientist, Medicinal Chemistry Division, Central Drug Research Institute, Lucknow.

Distinguished for his significant contributions to the biosynthesis structure and stereochemistry of Natural products.

**BHARGAVA, P. M.**, Deputy Director & Head of Biochemistry Division, Regional Research Laboratory, Hyderabad.

Distinguished for his contributions to the study of liver cell suspensions as also for his work on the biochemistry of spermatozoa and the regulation of uptake of metabolites by cells.

**BHATTACHARYYA, A.**, Director, Indian Institute of Technology, Kanpur.

Distinguished for his outstanding and valuable contributions in the field of machine tools, metal cutting and production engineering.

**CHAKRAVORTY, A.**, Professor & Head, Department of Chemistry, Indian Institute of Technology, Kanpur.

Distinguished for his studies of structure and dynamics of inorganic molecules with particular reference to their magnetic and spectroscopic behaviour.

**DASS, C. M. S.**, Professor of Zoology, Department of Zoology, University of Delhi, Delhi.

Distinguished for his contributions in cell biology with particular reference to the macronucleus in ciliates and ultrastructural studies of sperm formation in mammals.

**DHAWAN, B. N.**, Head Division of Pharmacology and Assistant Director, Central Drug Research Institute, Lucknow.

Distinguished for his contribution on neuro-humoral transmission at various sites.

DINESH MOHAN, Director, Central Building Research Institute, Roorkee.

Distinguished for his contribution to the science and practice of Foundation Engineering particularly in black cotton and soft soil.

GANGULEE, H. C., UGC Professor & Head, Department of Botany, Calcutta University, Calcutta.

Distinguished for his outstanding work on Taxonomy of Indian Mosses.

GANGULY, A. K., Director, Chemical Group, Bhabha Atomic Research Centre, Trombay, Bombay.

Distinguished for his work in the field of radiation chemistry, properties of various clay minerals; environmental pollution and its control on problems of reactor liting.

GHOSH, S. K., Reader in Geology, Deptt. of Geological Sciences, Jadavpur University, Calcutta.

Distinguished for his researches in structural geology, and the application of mechanics backed by laboratory experiments of deformation on test models.

JAIN, S. C., Director, R & D.O., Ministry of Defence, T-10 Probnn Road, Delhi.

Distinguished for his outstanding contributions in various areas of experimental and theoretical solid state physics.

JHA, S. S., Associate Professor, Tata Institute of Fundamental Research, Homi Bhabha Road, Bombay.

Distinguished for his outstanding contributions to nonlinear optics.

KALLIANPUR, G., Director, Indian Statistical Institute, 203, B.T. Road, Calcutta.

Distinguished for his contributions to development of the theory of Gaussian Processes, general theory of Stochastic filtering together with that of Shiryaev.

KASTURI, T. R., Professor & Chairman, Department of Organic Chemistry Indian Institute of Science, Bangalore.

Distinguished for his significant contribution to synthetic organic chemistry.

**KHAN, ABRAR M.**, Professor of Botany, Department of Botany, Aligarh Muslim University, Aligarh.

Distinguished for his contributions in the field of plant pathology and plant nematology.

**LAKHANPAL, R. N.**, Deputy Director, Birbal Sahani Institute of Palaeobotany, Lucknow.

Distinguished for his significant work on paleo-ecology, palaeogeography tertiary period.

**MOUDGAL, N. R.**, Professor of Biochemistry, Indian Institute of Science, Bangalore.

Distinguished for his outstanding contributions to isolation characterization and study of mode of action of gonadotropins and their inhibitors.

**NARASIMHA, R.**, Professor of Aeronautical Engineering, Indian Institute of Science, Bangalore.

Distinguished for his outstanding and unique contributions in the field of fluid mechanics and the application of rarefield gas dynamics theories and singular perturbation techniques to complicated problems of practical relevance.

**RAMAKRISHNAN, T.**, Professor & Head, Microbiology & Cell Biology Laboratory, Indian Institute of Science, Bangalore.

Distinguished for his work to elucidate the metabolic pathways in *M. tuberculosis* and the factors involved in the mechanisms of drug resistance.

**RAO, N. G. P.**, Project Coordinator (Sorghum) & Head, IARI Regional Station, Hyderabad.

Distinguished for his contributions for developing a strong research programme in the field of sorghum improvement in India.

**RAO, U. R.**, Professor, Physical Research Laboratory, Ahmedabad, and Project Director, Indian Scientific Satellite Project, Bangalore.

Distinguished for his outstanding contributions in space physics.

**SASTRI, V. V.**, Additional Director, Institute of Petroleum exploration, Oil and Natural Gas Commission, Dehradun.

Distinguished for his work on micropalaeontology and the preparation of the tectonic map of India.

**SEN GUPTA, P.**, Professor & Head, Department of Chemistry, University of Kalyani, West Bengal.

Distinguished for his outstanding contributions in the field of triterpenoids with special reference to the elucidation of their structures, stereochemistry conformational analysis, molecular rearrangements and transformations.

**SEN, S. K.**, Professor of Geochemistry, Indian Institute of Technology, Kharagpur.

Distinguished for his work in the field of Geochemistry, Specially on Mg-Fe distribution in co-existing minerals.

**SINHA, K. P.**, Senior Professor & Chairman, Division of Physics and Mathematical Sciences, Indian Institute of Science, Bangalore.

Distinguished for his outstanding contributions in theoretical solid state physics particularly superconductivity and cosmology.

**SRIVASTAVA, U. S.**, Professor & Head, Zoology Department, Allahabad University, Allahabad.

Distinguished for his contributions on insect neuroendocrinology, particularly the action of juvenile hormone on higher diptera and on the effect of juvenoids on the biology of several insects.

**SUNDARAM, C. V.**, Head, Metallurgy Division, Bhabha Atomic Research Centre, Trombay, Bombay.

Distinguished for his outstanding contributions in the field of extractive metallurgy, particularly in regard to rare metals.

**SWARUP, H.**, Vice-Chancellor, Jiwaji University, Gwalior,

Distinguished for his contributions in the field of developmental morphology, experimental embryology and genetics with special reference to fishes.

**TANDON, P. N.**, Professor & Head, Department of Neurosurgery, All India Institute of Medical Sciences, New Delhi.

Distinguished for his significant contributions on infantile tremor syndrome, experimental enurotuberculosis in primates and clinicopathological studies.

## **FOREIGN FELLOWS ELECTED (1978)**

*(Effectuated from 1 January, 1979)*

**HADZI DUSAN.** Professor of Structural Chemistry Department of Chemistry and Director of Research, Chemical Institute Boris Kidric, Lajubljana, Yugoslavia.

Professor Hadzi is one of the most well-known scientists in Yugoslavia. He heads a big research institute in Lajubljana (Chemical Institute Boris Kidric). He is a member of the Slovenian Academy of Sciences and Arts and also of the Yugoslavian Academy of Sciences and Arts. He is a recipient of Boris Kidric Prize and is an author of many papers in vibrational spectroscopy, quantum chemistry and other areas. He has written many reviews and books related to hydrogen bonding and spectroscopy. He was a President of the Union of Yugoslav Chemical Societies.

**PONNAMPERUMA, CYRIL.**, Professor of Chemistry and Director of the Laboratory of Chemical Evolution, University of Maryland, College Park, Maryland 20742.

Professor Ponnamperuma is one of the leading scientists in the world dealing with the chemical basis of the origin of life. He has specialised on biological and chemical investigations on the origin of life vis-a-vis, search for life in Mars. His group has stimulated several biology experiments carried out in the Viking Mars Landers, which have helped in the interpretation of the data from the Viking Mission. His results have indicated that several of the viking experiments can be explained on the basis of the reactions of Martian surface and atmosphere. He is deeply involved with NASA project and is an authority on the mechanism and kinetics of Viking experiments.

**PRIGOGINE, ILYA**, Professor, Service de Chimie Physique II, Campus Plaine, Universite Libre de Bruxelles, Bruxelles, Belgium.

Professor Prigogine is known for his contribution to non-equilibrium statistical mechanics. His pioneering contributions in the former relate to development of methodology for evaluation of entropy production for irreversible processes and to the theory of thermodynamic flux equations which paved the way for the development of new discipline of non-equilibrium thermodynamics. In the almost virgin area of non-equilibrium statistical mechanics, he has developed a new methodology on the basis of Liouville equation and prigogine -Resibois master equation. The contributions in this area are also of far-reaching interest.

TOMONAGA, SIN-ITIRO, D.Sc. President Ashoka Forum, Japan and Emeritus Professor of Physics, Tokyo University of Education, 3-17-12, Kyonancho Musashino City, 180 Tokyo, Japan.

Professor Tomonaga is President of Ashoka Forum which is established for Indo-Japanese collaboration in scientific research. He is a member of Japan Academy; Order of Culture Recipient and Winner of Nobel Prize.

## FELLOWS DECEASED DURING 1978

### *Fellows:*

DR B.C. BASU  
DR S.C. CHATTERJEE  
DR J.J. CHINOY  
DR K.A. CHOWDHURI  
DR B.B. DIKSHIT  
DR K.R. DIXIT  
DR A.K. GAYEN  
DR V.R. KHANOLKAR,  
DR K.V. KRISHNAN  
DR P. PARIJA  
DR C.T. RAJAGOPAL  
DR S.M. SIRCAR  
DR J. VENKATESWARLU  
DR B.M. SEN

TABLE SHOWING THE NUMBERS OF FELLOWS AND  
FOREIGN FELLOWS OF THE ACADEMY

	Fellows	Foreign Fellows
31 December 1977	415	55
Deceased 1978	14	—
Elected 1978 (effective from 1 January 1979)	30	4
31 December 1978	431	59

## **C O M M I T T E E S**

### **(A) Ex-OFFICIO MEMBERSHIP BY OFFICERS**

1. THE PRESIDENT, by rule, presides over all the Committees which he attends.
2. The members present elect the Chairman in the absence of the PRESIDENT.
3. THE TREASURER and the two SECRETARIES are members of all Committees appointed by the Council except Sectional Committees and other Committees appointed under Rule 60.

### **(B) RETIREMENT FROM COMMITTEES**

1. The retirement of members of the Sectional Committees is laid down in the Regulations.
2. The tenure of members of other Standing Committees of the Academy is normally one year.

## **SECTIONAL COMMITTEES**

### **Sectional Committee 1**

(Pure mathematics, theoretical and applied mechanics, mathematical astronomy, statistics (theory), theoretical fluid mechanics, mathematics applied to physical, biological and social theories, operational research, computer science (theory) and systems analysis).

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<b>†DR M. S. RAGHUNATHAN</b>	<b>‡DR S. RAMANAN</b>

### **Sectional Committee 2**

(Atomic and molecular physics, solid state physics, low temperature physics, magnetism, X-ray, optical and microwave spectroscopy, X-ray optical and radio-Astronomy and astrophysics, acoustics, crystal physics, ionospheric and space physics, quantum mechanics and field theory, particle and high energy physics, plasma physics, statistical and manybody physics, nuclear physics, applied physics excluding engineering aspects).

**SECRETARY AND CONVENER; \*PROFESSOR L. S. KOTHARI**

<b>*DR M. K. DAS GUPTA</b>	<b>†DR B. V. SREEKANTAN</b>
<b>*DR P. K. IYENGAR</b>	<b>‡DR S. RAMASESHAN</b>
<b>†PROFESSOR M. K. V. BAPPU</b>	<b>‡PROFESSOR A. K. SAHA</b>
<b>†DR A. P. MITRA</b>	<b>‡PROFESSOR B. V. THOSAR</b>

### **Sectional Committee 3**

(Theoretical chemistry, inorganic chemistry, organic chemistry, analytical chemistry, physical chemistry, applied chemistry, nuclear chemistry).

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<b>*DR M. M. DHAR</b>	<b>†PROFESSOR H. L. NIGAM</b>
<b>*DR H. B. MATHUR</b>	<b>‡DR A. B. BISWAS</b>
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### Sectional Committee 4

(Engineering, metallurgy, electrotechnics and electronics, experimental fluid mechanics, technology).

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†DR S. K. BHATTACHARYA	‡DR L. R. VAIDYANATH

### Sectional Committee 5

(Meteorology, hydrology, oceanography (excluding marine biology), geology, geodesy, geophysics, geochemistry, mineralogy, physical geography).

SECRETARY AND CONVENER : \*DR S. N. SARKAR

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*DR I. C. PANDE	‡PROFESSOR V. L. S. BHIMASANKARAM
†DR (MISS) ANNA MANI	‡DR P. R. PISHAROTY
†DR K. NAHA	‡DR K. N. KAILASAM

### Sectional Committee 6

(Plant morphology and anatomy, plant taxonomy experimental embryology, plant physiology, mycology, plant ecology, palaeobotany, plant cytogenetics, plant genetics including genetics of micro-organisms).

SECRETARY AND CONVENER : †PROFESSOR (Mrs) ARCHANA SHARMA

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### Sectional Committee 7

(Vertebrate and invertebrate zoology, and palaeozoology, human and comparative anatomy, embryology, taxonomy and systematics, entomology, parasitology, protozoology, marine and freshwater zoology, animal ecology and animal behaviour, anthropology, animal physiology, animal and human genetics, cytogenetics).

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†PROFESSOR E. S. NARAYANAN	

<sup>a</sup>deceased

### Sectional Committee 8

(Medical sciences, microbiology, epidemiology, immunology, pathology, medical statistics and demography, pharmacology, psychiatry, endocrinology, biology of reproduction, human physiology and nutrition).

SECRETARY AND CONVENER : †DR S. SRIRAMACHARI

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*DR J. V. BHAT	†DR USHA K. LUTHRA
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### Sectional Committee 9

(Biochemistry, molecular biophysics, cell biology, molecular genetics, chemical microbiology).

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*DR N. K. NOTANI	†DR B. B. BISWAS
†DR D. P. BURMA	†DR G. C. ESH
†DR L. K. RAMACHANDRAN	†PROFESSOR A. N. RADHAKRISHNAN

### Sectional Committee 10

[Agriculture : agronomy, soil science, agricultural engineering, microbiology, agricultural climatology, agricultural physics, genetics, cytogenetics and plant breeding, horticulture, vegetable crops, floriculture, entomology (incl. economic zoology), plant pathology, nematology, agricultural chemicals, agricultural economics, agricultural extension].

[Animal sciences : animal breeding and genetics, animal physiology and nutrition, veterinary bacteriology, virology, and physiology, dairy chemistry and microbiology, dairy technology, fishery biology, fisheries technology, fisheries oceanography].

[Forestry : Forest sciences—silviculture, forest management, forest biometrics, forest ecology including typology, wood sciences — wood mechanics, wood preservation, wood seasoning, wood engineering, pulp and paper technology].

SECRETARY AND CONVENER : †DR G. B. DEODIKAR

*DR A. B. JOSHI	†DR S. K. MUKHERJEE
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*DR SYAM PRASAD RAYCHAUDHURI	†DR B. CHOUDHURY
†DR R. D. ASANA	†DR PREM NARAIN

\*To retire 31 December 1979

†To retire 31 December 1980

‡To retire 31 December 1981

*Note* : The retirement of members during 1978 will be by seniority/ballot as provided under Regulation 7 of the Regulations regarding the Sectional Committees.

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THE PRESIDENT—*Chairman*  
THE VICE-PRESIDENT (one)  
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THE TREASURER  
THE Two SECRETARIES  
SECRETARY DST or his nominee  
SHRI SUSAINATHAN

### **(B) Finance Committee**

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THE Two EDITORS OF PUBLICATIONS  
THE Two REPRESENTATIVES OF THE GOVT. OF INDIA  
THE VICE-CHAIRMAN OF THE NATIONAL COMMISSION FOR  
THE COMPILATION OF HISTORY OF SCIENCES IN INDIA  
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DR. SIVTOSH MOOKERJEE

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DR. N. K. NOTANI

PROFESSOR A. K. SAHA

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PROFESSOR R. N. KAUL  
PROFESSOR L. S. KOTHARI  
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**(J) Editorial Board : Proceedings Part 'B'**

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 PROFESSOR N. BALAKRISHNAN NAIR  
 DR. N. K. NOTANI  
 PROFESSOR V. PURI  
 PROFESSOR (MRS) ARCHANA SHARMA  
 PROFESSOR G. P. SHARMA

**(K) Selection Committees****(I) FOR POSTS WITH BASIC INITIAL SALARY EQUAL TO OR MORE THAN RS. 1100 (EXECUTIVE SECRETARY, ASSISTANT SECRETARY, ASSOCIATE EDITOR, TECHNICAL OFFICER AND TECHNICAL ASSISTANT TO THE PRESIDENT)**

THE PRESIDENT — *Chairman*  
 Two LOCAL FELLOWS  
 (to be nominated by the President)  
 Two SECRETARIES  
 THE FOREIGN SECRETARY  
 THE TREASURER  
 Two EDITORS OF PUBLICATIONS  
 ONE OUTSIDE EXPERT, if necessary  
 (to be nominated by the President)

**(II) FOR POST WITH BASIC INITIAL SALARY EQUAL TO RS. 550  
Category 'A' (*Finance and Accounts*)**

ONE OF THE VICE-PRESIDENTS — *Chairman*  
 Two LOCAL FELLOWS  
 (to be nominated by the President)  
 THE TREASURER  
 ONE OF THE SECRETARIES  
 GOVERNMENT REPRESENTATIVE  
 (on the Finance Committee)

**Category 'B' (*Publications*)**

ONE OF THE VICE-PRESIDENTS — *Chairman*  
TWO LOCAL FELLOWS  
(to be nominated by the President)  
TWO EDITORS OF PUBLICATIONS  
ONE OF THE SECRETARIES  
ONE OUTSIDE EXPERT  
(to be co-opted, if necessary)

**Category 'C' (*Other Posts*)**

ONE OF THE VICE-PRESIDENTS — *Chairman*  
ONE OF THE SECRETARIES  
TWO LOCAL FELLOWS  
(to be nominated by the President)  
THE TREASURER  
ONE OUTSIDE EXPERT  
(to be co-opted, if necessary)

**(III) For all others (*Class III & IV*)**

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THE TREASURER  
TWO FELLOWS  
EXECUTIVE SECRETARY

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PROFESSOR A. K. SHARMA

PROFESSOR M. S. SODHA

PROJECT CO-ORDINATOR (BASIC SCIENCES) — *Convener*

### **(B) Indo-Soviet Committee**

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THE FOREIGN SECRETARY

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DR S. CHANDRASEKHAR

PROFESSOR J. GANGULY

PROFESSOR HARI NARAIN

DR H. K. JAIN

PROFESSOR M. S. NARASIMHAN

DR NITYA NAND

DR M. SANTAPPA

PROFESSOR (MRS) ARCHNA SHARMA

DR SUKH DEV

}

*Ex-Officio*

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PROFESSOR S. RAMASESHAN	PROFESSOR B. V. SREEKANTAN
PROFESSOR S. K. TREHAN	

PROFESSOR J. N. KAPUR—*Convener*

**II. Chemistry and Biological Sciences**

DR H. Y. MOHAN RAM	DR NITYA NAND
DR N. K. NOTANI	PROFESSOR C. N. R. RAO
DR SUKH DEV	

DR M. L. DHAR—*Convener*

**III. Earth Sciences Including Oceanography**

DR G. N. BHARGAVA	DR P. K. DAS
PROFESSOR S. DEV	DR DEVANDRA LAL

DR S.Z. QASIM—*Convener*

**Popularisation of Science**

THE PRESIDENT — *Chairman*  
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 DR N. BALAKRISHNAN NAIR  
 DR Y. NAYUDAMMA  
 DR B. V. THOSAR

## REPRESENTATION ON OTHER ORGANIZATIONS

Invitations are received from the Government of India and several scientific institutions/organizations for representation of the Academy on their Committees. These representatives are appointed by the Council and they serve on these committees during the tenure of the Committees specified by these organizations. The following list gives the names of the representatives on the organizations concerned.

### ALL INDIA COUNCIL OF TECHNICAL EDUCATION

PROFESSOR M. R. N. PRASAD (up to July 1979)

### INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE

DR C. R. KRISHNA MURTI

DR S. K. JOSHI

### INDIAN STATISTICAL INSTITUTE

#### *Governing Body of the Research and Training School*

1. Mathematician PROFESSOR M. S. NARASIMHAN
2. Statistician PROFESSOR S. S. SHRIKHANDE  
(who is a University Professor)
3. Biologist PROFESSOR B. K. BACHHAWAT
4. Scientist working in the field  
of Natural Science DR S. C. BHATTACHARYYA

### INDIAN COUNCIL OF AGRICULTURAL RESEARCH (SOCIETY)

THE PRESIDENT, INSA, or his nominee

### BIRBAL SAHNI INSTITUTE OF PALAEOBOTANY (SOCIETY)

PROFESSOR V. PURI (w.e.f. July 9, 1978  
for three years)

### COMMITTEE FOR WEATHER MODIFICATION EXPERIMENTS (MINISTRY OF TOURISM AND CIVIL AVIATION)

PROFESSOR P. R. PISHAROTY

### INDIAN COUNCIL OF PHILOSOPHY

PROFESSOR J. V. NARLIKAR

# NATIONAL COMMISSION FOR THE COMPILATION OF HISTORY OF SCIENCES IN INDIA

A. The National Commission for the Compilation of History of Sciences in India has been set up by the Academy in consultation with the Minister of Education, with the following terms of reference :

- (i) To supervise the compilation and publication of History of Sciences in India; and
- (ii) To publish studies in the History of Sciences in India as and when ready, serially as well as in the form of monographs and bibliographies.

The present membership of the National Commission is given below :

**PROFESSOR V. RAMALINGASWAMI**  
(*President INSA*)  
Director  
All India Institute of Medical Sciences,  
Ansari Nagar, New Delhi-110 016.

*Chairman*  
*(Ex-officio)*

**DR R. RAMANNA**  
(*Immediate Past President INSA*)  
Scientific Adviser to Raksha Mantri &  
Director General (R & D),  
Secretary to Govt. of India for Defence  
Research in Ministry of Defence,  
South Block, New Delhi.

*Member*  
*(Ex-officio)*

**PROFESSOR F. C. AULUCK**  
Department of Physics and Astrophysics,  
University of Delhi, Delhi-110 007.

*Vice-Chairman*

**PROFESSOR B. RAMACHANDRA RAO**  
*(Treasurer, INSA)*  
 Vice-Chairman,  
 University Grants Commission,  
 Bahadur Shah Zafar Marg, New Delhi-110 002.

*Member*  
*(Ex-officio)*

**DR M. G. DEO**  
*Secretary, INSA*  
 Research Director,  
 Cancer Research Institute,  
 Tata Memorial Centre, Parel,  
 Bombay-400 012.

**DR A. P. MITRA**  
*(Secretary, INSA)*  
 Deputy Director,  
 National Physical Laboratory,  
 Hillside Road, New Delhi-110 012.

**SHRI S. N. SEN**  
*[Chairman Advisory Committee (Ancient Period)]*  
 Ex-Registrar,  
 Indian Association for the Cultivation of Science,  
 Jadavpore, Calcutta-700 032.

**SHRI A. RAHMAN**  
*Chairman Advisory Committee Medieval Period,*  
 Chief (Planning & Head),  
 Center for Study of Science,  
 Technology and Development,  
 Council of Scientific & Industrial Research,  
 New Delhi-110 001.

**PROFESSOR O. P. JAGGI**  
*(Chairman Advisory Committee Modern Period)*  
 Head Department of Clinical Research,  
 V. Patel Chest Institute,  
 University of Delhi,  
 Delhi-110 007.

**DR N. R. BANERJEE**  
 Director  
 National Museum,  
 Janpath, New Delhi-110 001.

*Member*

**PROFESSOR (MRS.) ASIMA CHATTERJEE**  
 Khaira Professor of Chemistry and  
 Head of the Department,  
 Calcutta University,  
 92 Acharya Prafulla Ch. Road,  
 Calcutta-700 009.

*Member*

**DR M. N. DESHPANDE**  
 Director-General,  
 Archaeological Survey of India,  
 Janpath New Delhi-110 001.

„

**DR H. K. JAIN**  
 Director,  
 Indian Agricultural Research Institute,  
 New Delhi-110 012.

„

**PROFESSOR B. M. JOHRI**  
 Riviera Apartments,  
 Flat No. 29, Sixth Floor,  
 45 Mall Road, Civil Lines,  
 New Delhi-110 007.

„

**DR K. V. SARMA**  
 Acting Director,  
 Vishveshvaranand,  
 Institute of Sanskrit and Indological Studies,  
 Panjab University,  
 P. O. Sadhu Ashram,  
 Hoshiarpur Punjab-146 021.

„

**DR B. V. SUBBARAYAPPA**  
 Adviser (Academic),  
 Nehru Center,  
 (Behind Lotus Cinema),  
 Dr. Annie Besant Road,  
 Worli Bombay-400 013.

„

**DR N. M. TANTIA**  
 Director,  
 Institute of Buddhist Studies,  
 Nalanda Bihar.

„

**HAKEEM ABDUL HAMID**  
 President,  
 Institute of History of Medicine & Medical Research,  
 P. O. Madangir, New Delhi-110 062.

„

**DR A. K. BAG***Project Coordinator**(History of Science)*

Indian National Science Academy

Bahadur Shah Zafar Marg,

New Delhi-110 002

*Member-Secretary*

**B.** Three Advisory Committees have also been re-constituted to advise regarding Compilation of History of Sciences in the Ancient, Medieval and Modern Periods as below :

**I. Advisory Committee (Ancient Period)****SHRI S. N. SEN***Chairman*

Ex-Registrar

Indian Association for the Cultivation of Science

Calcutta 700 032.

**DR K. V. SARMA***Member*

Acting Director,

Vishveshvaranand Vedic Research Institute

Hoshiarpur, Panjab

**SHRI M. N. DESHPANDE**

,,

Director-General,

Archaeological Survey of India, New Delhi-110001

**PROFESSOR P. V. SHARMA***Member*

Senior Professor &amp; Head of the

Dept. of Drvyagunna

Institute of Medical Sciences

Banaras Hindu University, Varanasi

**DR R. C. GUPTA**

,,

Birla Institute of Technology

Ranchi, (Bihar)

**DR J. C. SIKDAR**

,,

Research Officer

L. D. Institute of Indology

Ahmedabad

**DR S. R. SHARMA**

,,

Dept. of Sanskrit

Aligarh Muslim University

Aligarh

**DR K. T. M. HEGDE**  
**M. S. University,**  
**Baroda.**

*Member*

**PROFESSOR B. H. S. YADAV**  
**Dept. of Ancient History,**  
**Culture and Archaeology,**  
**Faculty of Arts,**  
**University of Allahabad,**  
**Allahabad.**

“

**DR R. N. KAPIL**  
**Dept. of Botany,**  
**University of Delhi,**  
**Delhi-110 007.**

*Member-Secretary*

## **II. Advisory Committee (Medieval Period)**

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**Chief (Planning) & Head,**  
**Centre for Study of Science,**  
**Technology and Development,**  
**Council of Scientific &**  
**Industrial Research,**  
**New Delhi-110 001.**

*Chairman*

**DR S. M. R. ANSARI**  
**Deptt. of Physics,**  
**Aligarh Muslim University, Aligarh.**

*Member*

**PROFESSOR RAM BEHARI**  
**7/28, Daryaganj,**  
**Delhi-110 006.**

“

**SHRI K. V. SAMBAMURTHI**  
**Ch. 35, K. R. Vanam,**  
**4th Cross Chamaraja Mohalla,**  
**Mysore-570 008.**

“

**DR IRFAN HABIB**  
**Deptt. of History,**  
**Aligarh Muslim University, Aligarh.**

“

**DR S. P. RAYCHAUDHURI**  
 Formerly of the Indian Agriculture  
 Research Institute,  
 EC-9, Inderpuri,  
 New Delhi-110 012.

*Member*

**PROFESSOR K. S. SHUKLA**  
 Department of Mathematics.  
 Lucknow University,  
 Lucknow, U. P.

"

**DR R. SEN GUPTA**  
 Director (Conservation),  
 Archaeological Survey of India,  
 Janpath Road,  
 New Delhi-110 001.

"

**PROFESSOR H. ABDUL HAMEED**  
 Director,  
 Institute of History of  
 Medicine and Medical Research,  
 Tughlagabad,  
 P. O. Madangir,  
 New Delhi-110 062.

"

**DR O. P. AGARWAL**  
 Project Officer & Head,  
 National Research Laboratory  
 for Conservation of Cultural  
 Property,  
 State Museum Building,  
 Lucknow-226 001.

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 Patel Chest Research Institute,  
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*Chairman*

**DR BARUN DE**  
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 Calcutta Centre for  
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 10 Lake Terranu Road,  
 Calcutta-700 029.

*Member*

**PROFESSOR R. S. MISHRA**  
 Department of Mathematics,  
 Banaras Hindu University,  
 Varanasi.

*Member*

**DR S. D. SHARMA**  
 Department of Physics,  
 Punjabi University,  
 Patiala, Panjab.

„

**DR B. V. SUBBARAYAPPA**  
 Nehru Centre,  
 Sterling Centre, 7th floor,  
 Dr Annie Besant Road,  
 Worli, Bombay-400 085.

„

**PROFESSOR A. R. VASUDEVA MURTHY**  
 PROFESSOR and Head of the Department  
 of Inorganic & Physical Chemistry,  
 Indian Institute of Science,  
 Bangalore.

„

**DR S. N. PRASAD**  
 Director,  
 National Archives of India,  
 Janpath,  
 New Delhi-110 001.

„

**DR M. SANKAR DAS**  
 Head, Analytical Chemistry Division,  
 Bhabha Atomic Research  
 Centre,  
 Bombay 400 085.

„

**PROFESSOR SUMIT SARKAR**  
 Department of History,  
 University of Delhi,  
 Delhi 110 007.

„

**PROFESSOR H. Y. MOHAN RAM**  
 Department of Botany,  
 University of Delhi,  
 Delhi-110 007.

*Member-  
 Secretary*

C. The Commission has been bringing out a half-yearly journal entitled *The Indian Journal of History of Science* since January 1966. An Editorial Board has been set up for publication of this journal with the following :

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PROFESSOR O. P. JAGGI

PROFESSOR R. N. KAPIL

PROFESSOR H. Y. MOHAN RAM

PROFESSOR J. V. NARLIKAR

SHREE A. RAHMAN

SHREE S. N. SEN

PROFESSOR K. S. SHUKLA

DR B. V. SUBBARAYAPPA

DR A. K. BAG (*Associate Editor*)

# COMMITTEES CONCERNED WITH THE INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS, ITS UNIONS AND COMMITTEES

## INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

International relations in science are important not only for exchange of scientific information through scientific conferences and publications, but also for promoting international understanding among scientists of different nations through participation in scientific programmes, and collaboration in special fields through exchange of personnel.

The International Council of Scientific Unions was formed for the purpose of facilitating international co-operation in Scientific work and promoting the formation of international unions in different branches of science. The affairs of the International Council of Scientific Union are managed by General Committee consisting of the President, Vice-President, Past-President, Secretary-General, Treasurer, 18 representatives of Unions and 12 national representatives.

The Indian National Science Academy is the Adhering Body of the International Council of Scientific Unions. It acts through the Chairman of all the National Committees. The Adhering Body sponsors the Indian delegates to the meetings of the International Council and of the International Unions.

Under the auspices of the Council, International Unions have been formed and India adheres to 17 Unions, namely those for Astronomy, Biochemistry, Biology, Biophysics, Chemistry, Crystallography, Geodesy and Geophysics, Geography, Geological Sciences, History and Philosophy of Science, Mathematics, Nutritional Sciences, Physics, Physiological Sciences, Radio Science, Theoretical and Applied Mechanics and the Pharmacology. Although Special and Scientific Committees were set up by the International Council of Scientific Unions on Antarctic Research, on Oceanic Research and on Space Research in 1958, for the International Biological Programme in 1967, on Data

for Science and Technology in 1966, the Inter-Union Commission on Solar Terrestrial Physics in 1966, on Problems of Environment (SCOPE) in 1969 and Inter-Union Commission on Geodynamics (ICG) in 1969, India has been participating in the activities of only the Committees on International Biological Programme, Oceanic Research, Space Research, the Inter-Union Commission on Solar Terrestrial Physics, Special Committee on Problems of Environment, Inter-Union Commission on Geodynamics and Data for Science & Technology and Committee on Science & Technology in Developing Countries.

Under the statutes of each International Union, an Adhering Body should appoint a committee to maintain contract with the Bureau of each Union to which it has adhered with the object of facilitating international co-operation in the branch of science with which it is concerned to recommend to the adhering organization such charges of statute, proposals for scientific action or matters for discussion as may be desirable for bringing before the General Assembly of the Union and also to select delegates to represent the adhering organization at the General Assembly of the Union.

#### INDIAN NATIONAL COMMITTEES CORRESPONDING WITH UNIONS

For each of the Seventeen Unions mentioned above, a national Committee for India is formed, the functions of such committees are defined in the statutes of the various Unions. In general, they are: the promotion of the branches of sciences with which they are concerned, more especially as regards international requirements, the nomination of delegates to represent India at meetings of the Unions, and the initiation of proposals or questions for discussion at such meetings.

The Indian National Committees for Astronomy, Biochemistry, Biology, Biophysics, Chemistry, Crystallography, Geodesy and Geophysics, Geography, Geological Sciences, History and Philosophy of Science Mathematics, Nutritional Sciences, Physics Radio Science and Theoretical Applied Mechanics and Pharmacology have been reconstituted by the Adhering Body. The INSA's Committee for Physiological Sciences has also been constituted.

The members nominated to a committee by anybody are to serve as nominees of that same body for a period not exceeding three years consecutively. No ordinary Member of a committee is to serve as Chairman for more than three years consecutively.

#### INDIAN NATIONAL COMMITTEES CORRESPONDING WITH SPECIAL AND SCIENTIFIC COMMITTEES

The Adhering Body has also reconstituted National Committees for Oceanic Research and Space Research to correspond with scientific committees set up by the International Council of Scientific Unions. These National Committees have the additional duty of co-ordinating the Indian scientific programme in relation to the International programme.

An Indian National Committee has also been reconstituted for the Special Committee on Solar Terrestrial Physics. The Indian National Committee for the Inter-Union Commission on Geodynamics has also been constituted. Similarly Indian National Committees for Committee on Science & Technology for Developing Countries, Scientific Committee on Problems of Environment and Committee on Data for Science and Technology have also been reconstituted.

The membership of these National Committees is also restricted to three years.

#### INDIAN NATIONAL COMMITTEE FOR THE ICSU

A Committee comprising the Chairmen of all Indian National Committees forms the Indian National Committee for the ICSU. The President of the INSA is the *ex-officio* Chairman of the Committee and the Foreign Secretary of the INSA is the Member-Secretary of this Committee.

The following pages show the membership of the various bodies :

- (i) Indian National Committee for ICSU (*see p. 120*)
- (ii) Indian National Committees corresponding with various Scientific Unions (*see pp. 121-124*)
- (iii) Indian National Committees corresponding with Special and Scientific Committees (*see pp. 125-126*)

## NATIONAL COMMITTEE FOR ICSU

To realize the objects of Council e.g. to facilitate and coordinate the activities of the International Scientific Unions in the field of the exact and the natural sciences; to act as the co-ordinating centre for the National organizations adhering to the Council; to encourage international scientific activities; to enter through the intermediary of the national adhering organizations into relations with the Government of their respective countries in order to promote scientific research in these countries; to maintain relations with the specialized and related agencies of the United Nations; and to make such contacts and mutual arrangements as are deemed necessary with other international Councils, Unions and Organizations where common interest exists.

**CHAIRMAN : THE PRESIDENT, Indian National Science Academy**

*The Chairmen of the Indian National Committees (1978-1981)*

- DR S. K. TREHAN (Astronomy)
- DR A. N. RADHAKRISHNAN (Biochemistry)
- DR B. P. PAL (Biological Sciences)
- DR N. K. NOTANI (Pure and Applied Biophysics)
- DR C. N. R. RAO (Pure and Applied Chemistry)
- DR N. N. SAHA (Crystallography)
- DR P. K. DAS (Geodesy & Geophysics)
- DR MOHD. SHAFI (Geography)
- DR F. AHMAD (Geological Sciences)
- DR K. S. SHUKLA (History and Philosophy of Science)
- DR C. S. SESHA DRI (Mathematics)
- DR S. SRIRAMACHARI (Nutritional Sciences)
- DR N. A. NARASIMHAM (Pure and Applied Physics)
- DR B. K. ANAND (Physiological Sciences)
- DR B. RAMACHANDRA RAO (Radio Science)
- DR K. S. YAJNIK (Theoretical and Applied Mechanics)
- DR P. K. IYENGAR (Data for Science and Technology)
- SHRI L. N. KAILASAM (Geodynamics)
- DR Y. P. RAO (Oceanic Research)
- DR S. KRISHNASWAMY (Problems of Environment)
- DR M. K. DAS GUPTA (Solar Terrestrial Physics)
- DR S. DHAWAN (Space Research)
- DR U. K. SHETH (Pharmacology)
- THE PRESIDENT, INSA (Science and Technology in Developing Countries)
- THE FOREIGN SECRETARY, INSA (Member-Secretary)

**National Committee for Astronomy****CHAIRMAN : PROFESSOR S.K. TREHAN**

DR K.D. ABHYANKAR	PROFESSOR J.V. NARLIKAR
PROFESSOR J.C. BHATTACHARYYA	DR M.C. PANDE
DR R.V. BHONSLE	PROFESSOR V. RADHA-KRISHNAN

**DR V.R. VENUGOPAL (*Member-Secretary*)****National Committee for Biochemistry****CHAIRMAN : DR A.N. RADHAKRISHNAN**

DR J. BARNABAS	DR S. RAMACHANDRAN
PROFESSOR B.B. BISWAS	DR M.R. RAGHAVENDRA RAO
DR P.K. MAITRA	DR C. SIVARAMAN
DR N.R. MOUDGAL	

**DR G.B. NADKARNI (*Member-Secretary*)****National Committee for Biological Sciences****CHAIRMAN : DR B.P. PAL**

DR R.D. ASANA	DR N.B.K. NAIR
DR V.L. CHOPRA	DR A.K. SHARMA
DR S.S. GURAYA	DR C.V. SUBRAMANIAN
PROFESSOR G.K. MANNA	

**PROFESSOR H.Y. MOHAN RAM (*Member-Secretary*)****National Committee for Pure and Applied Biophysics****CHAIRMAN : DR N.K. NOTANI**

DR A. K. DEB*	DR V.S. RAMA DAS
DR R.K. MISHRA	DR O. SIDDIQI

**DR D.P. BURMA (*Member-Secretary*)**

## National Committee for Pure and Applied Chemistry

CHAIRMAN : PROFESSOR C.N.R. RAO

DR J.C. AHLUWALIA	DR H.B. MATHUR
PROFESSOR S.C. BHATTACHARYYA	DR P.T. NARASIMHAN*
DR J.N. CHATTERJEA	DR M.V. RAMANIAH
DR B.S. JOSHI	

PROFESSOR GOVERDHAN MEHTA (*Member-Secretary*)

## National Committee for Crystallography

CHAIRMAN : DR N.N. SAHA

DR M.P. GUPTA	DR G.C. TRIGUNAYAT
DR KRISHAN LAL	DR K. VENKATESAN
DR A. SEQUEIRA	

DR P. KRISHNA (*Member-Secretary*)

## National Committee for Geodesy and Geophysics

CHAIRMAN : DR P.K. DAS

DR U. ASWATHANARAYANA	DR (Mrs) GIRIJA RAJA RAM
PROFESSOR S. BALAKRISHNA*	DR H.N. SIDDIQUIE
DR K. GOPALAN	DR H. SINHAL
DR K.L. KAILA	

DR V.L.S. BHIMASANKARAM (*Member-Secretary*)

## National Committee for Geography

CHAIRMAN : PROFESSOR MOHD. SHAFI

DR E. AHMAD	DR G.S. GOSAL
DR S. MANZOOR ALAM	DR V.A. JANAKI
DR N. BALAKRISHNA REDDY	DR S.L. KAYASTHA

DR H.P. DAS (*Member-Secretary*)

**National Committee for Geological Sciences**

CHAIRMAN : PROFESSOR F. AHMAD

DR S.K. AGRAWAL

DR A.K. BANERJI

PROFESSOR J.M. CHOUDHURY

DR KURIEN JACOB

DR B.K. SAHU

DR S K. RAMASWAMY

DR G.R. UDAS

DR V.K. GAUR (*Member-Secretary*)**National Committee for History and Philosophy of Science**

CHAIRMAN : PROFESSOR K. S. SHUKLA

DR S.M.R. ANSARI

DR M. N. DESHPANDE

PROF. A. R. VASUDEVA MURTHY

PROFESSOR A. RAHMAN

DR S. N. SEN

DR O. P. JAGGI (*Member-Secretary*)**National Committee for Mathematics**

CHAIRMAN : PROFESSOR C. S. SESHA DRI

PROF. G. KALIANPUR

DR A. MAITRA

PROF. R. NARASIMHAN

PROFESSOR K. R. PARTHASARATHY

PROFESSOR S. S. SHRIKHANDE

PROFESSOR U. N. SINGH (*Member-Secretary*)**National Committee for the International Union of Nutritional Sciences**

CHAIRMAN : DR S. SRIRAMACHARI

DR A. N. BOSE

DR H. R. CAMA

DR M.R. CHANDRASEKHARA

DR H. S. R. DESIKACHAR

DR SHANTI GHOSH

DR VINODINI REDDY

DR M. C. SWAMINATHAN\*

DR SAROJ MEHTA (*Member-Secretary*)

## National Committee for Pure and Applied Physics

CHAIRMAN : DR N. A. NARASIMHAM

DR V. G. BHIDE	PROFESSOR A. N. MITRA*
PROFESSOR K. L. CHOPRA*	DR B. S. RAMAKRISHNA
DR R. R. DANIEL	PROFESSOR R. VIJAYARAGHAVAN
DR V. LAKSHMINARAYANA	

DR KRISHANJI (*Member-Secretary*)

## National Committee for Physiological Sciences

CHAIRMAN : DR B. K. ANAND

DR (MISS) BHAVANI BELAVADY	PROFESSOR S. K. MANCHANDA
DR J. CHAUDHURY	DR J. M. SENAPATI
DR M. S. DEVANANDAN	DR K. N. SHARMA
DR S. K. LAL	DR(MRS)S. PARVATHI DEVI*
DR A. K. MAITI	

DR P. K. DEY (*Member-Secretary*)

## National Committee for Radio Science

CHAIRMAN : PROFESSOR B. RAMACHANDRA RAO

DR ANAND KUMAR	DR G. S. SANYAL
DR K. CHANDRA	SHRI N. V. G. SARMA
DR A. P. MITRA	DR J. S. SHIRKE
PROFESSOR R. G. RASTOGI	

DR B. R. NAG (*Member-Secretary*)

## National Committee for Theoretical and Applied Mechanics

CHAIRMAN : K. S. YAJNIK

DR H. C. AGRAWAL*	PROFESSOR R. S. NANDA
DR O. P. BHUTANI	DR A. K. RAO
PROFESSOR G. K. GROVER	

PROFESSOR S. P. SUKHATME (*Member-Secretary*)

**National Committee for Geodynamics\*\***

CHAIRMAN : SHRI L. N. KAILASAM

DR R. S. CHUGH	PROFESSOR B. SUNDARA
DR C. RADHAKRISHNAMURTY	RAMA RAO
	DR K. S. VALDIYA

DR H. M. CHAUDHURY (*Member-Secretary*)**National Committee for Oceanic Research**

CHAIRMAN : PROFESSOR Y. P. RAO

DR S. N. DWIVEDI	DR B. PATEL
DR A. K. MALHOTRA	DR V. V. SASTRI
DR R. NATARAJAN	DR Z. S. TARAPORE

DR V. V. R. VARADACHARI (*Member-Secretary*)**National Committee on Problems of Environment**

CHAIRMAN : DR S. KRISHNASWAMY

DR S. BASU	DR J. S. SINGH
DR A. K. GANGULY	DR B. B. SUNDARESAN
DR C. R. KRISHNAMURTI	

DR D. K. BISWAS (*Member-Secretary*)**National Committee for Solar Terrestrial Physics**

CHAIRMAN : PROFESSOR M. K. DASGUPTA \*

PROFESSOR S. BISWAS	PROFESSOR M. SRIRAM RAO
DR C. A. REDDY	DR J. N. TANDON
PROFESSOR R. N. SINGH *	

DR K. KASTURIRANGAN (*Member-Secretary*)

### National Committee for Space Research

CHAIRMAN : PROFESSOR S. DHAWAN

DR N. BHANDARI

PROFESSOR U. R. RAO

PROFESSOR J. S. CHATTERJEE\*

PROFESSOR YASH PAL\*

DR K. K. MAHAJAN

DR S. E. ROY\*

MISS A. MANI

DR S. RAMASESHAN

PROFESSOR P. D. BHAVSAR (*Member-Secretary*)

### National Committee on Data for Science and Technology

CHAIRMAN : DR P. K. IYENGAR

DR A. K. BARUA

DR P. R. PISHAROTI

DR V. A. KAMATH

DR D. S. VISWANATH

DR S. S. KAPOOR

DR A. NEELAMEGHAN (*Member-Secretary*)

### National Committee for Science and Technology in Developing Countries

CHAIRMAN : PRESIDENT, INSA

DR S. BHAGAVANTAM

DR B. D. NAG CHAUDHURI

DR M. S. KANUNGO

DR YASH PAL\*

PROFESSOR A. M. KHUSRO\*

PROFESSOR A. S. PAINTAL (*Member-Secretary*)

### National Committee for Pharmacology

CHAIRMAN : PROFESSOR U. K. SHETH

PROF. K.P. BHARGAVA

DR LALITHA KAMESHAWARAN

DR P. C. DANDIYA\*

PROFESSOR P. K. KAR

PROFESSOR O. D. GULATI

DR R. K. SANYAL

DR P. S. R. K. HARNATH

PROFESSOR S. C. LAHIRI (*Member-Secretary*)

**Note :** The above committees are valid up to 30.6.1981

\* Concurrence awaited

\*\* The National Committee for ICG is valid up to 30.6.1979.

## SCIENTIFIC RESEARCH AND RESEARCH TRAINING IN BASIC SCIENCES

While formulating the Fourth Five-Year Plan, the Planning Commission reviewed the entire programme of funding research in the country and it was felt that although various agencies such as CSIR, DAE, IRDO, etc., fund research in areas relevant to the objectives of the corresponding agencies, there is no agency which funds Basic Research in emerging areas of science and also supports young promising scientists. The Government felt that this gap should be filled in and appropriately entrusted the Academy to operate a scheme on 'Scientific Research and Research Training in Basic Sciences'. This scheme was started in 1969 and has continued ever since.

The broad objectives and the categories of research projects supported under this scheme are as follows :

1. Projects normally concerning human environment involving several disciplines of science and which sooner or later will lead to distinct applications for the benefit of the nation.
2. Projects of fundamental nature relating to frontiers of science.
3. Projects leading to improvement in technical applications and resulting in earning or saving of foreign exchange, export promotion, import substitution and betterment of living standards of the people.
4. Composite scientific expedition and field studies in regions of the country about which there exists little or no scientific information.
5. Establishing Science Service Centre with appropriate instrumental facilities and necessary technical staff which would serve as auxiliary service to research endeavour.

6. Multi-disciplinary research programmes of high priority in the context of national development.
7. Supporting individual scientists of established reputation so as to build schools of research in various branches of science.
8. Support to the projects of the awardees of the Academy Medal for Young Scientists.

From time to time the Advisory Committee for Basic Sciences identifies the areas of research in the context of national development in all disciplines of Science through suggestions invited from the Fellowship and the projects are formulated in these fields.

The Advisory Committee for Basic Sciences constitutes of the following members :-

- (a) THE PRESIDENT
- (b) THE IMMEDIATE PAST-PRESIDENT
- (c) THE TREASURER
- (d) THE TWO SECRETARIES
- (e) THE CONVENERS OF THE TEN SECTIONAL COMMITTEES
- (f) TWO-THREE MEMBERS (TO BE NOMINATED BY THE PRESIDENT WHO MAY NOT NECESSARILY BE FELLOWS OF THE ACADEMY).

# INTER ACADEMY EXCHANGE PROGRAMME

The Inter Academy Exchange Programme has been on continuous development since its inception in 1971. The programme basically aims at establishing collaborative scientific exchange of activities between different countries of the world through visits of scientists on reciprocal basis at Senior and Junior level to various Institutions in the fields of interest for mutual benefit of the participating countries. The Academy plays mainly the pivotal role in coordinating such a programme in way of facilitating contacts between scientific individuals/institutions from different collaborating countries. Presently the Academy has exchange of scientists programme with the Royal Society, London and the Japan Society for Promotion of Science, Tokyo. Emphasis has been put increasingly to initiate similar programme with the neighbouring countries in particular with Sri Lanka, Bangla Desh, Nepal etc., as well as with other countries, U.S.A., Poland, Yugoslavia as future expanding activities.

## 1. INSA-ROYAL SOCIETY EXCHANGE OF SCIENTISTS PROGRAMME

The Exchange of Scientists Programme between the INSA and the Royal Society, London was initiated in the year 1971 for the exchange visits of scientists at Senior and middle level or reciprocal basis to Institutions/Laboratories/Universities in India and U.K. respectively. A formal agreement on exchange visits between the Indian National Science Academy and the Royal Society, London was entered into on 27th March 1978. The salient feature of the programme are as under:

### *Visits*

Visits are arranged annually in each direction for post doctoral scientists in the natural sciences and technology in two categories:

- (a) Study visits-usually for short periods, with the aim of visiting a number of laboratories in the host country for discussions and liaison, and
- (b) Fellowships-for longer periods of not less than four months, to carry out research projects or to learn techniques predominantly in one laboratory, but with provision for short subsidiary visits to other.

## 2. INSA-JAPAN SOCIETY FOR THE PROMOTION OF SCIENCE EXCHANGE OF SCIENTISTS PROGRAMME

In June 1976 an agreement was entered into between the INSA and the Japan Society for the Promotion of Science (JSPS), Tokyo to promote exchange of scientists and scientific collaborative research programme between the two countries. The agreement provides:

### *Visits and Duration*

The change is normally at post-doctoral or higher level and includes:

- (a) Exchange of visits by Junior Scientists to carry out research in collaboration with host country professor or researchers. The duration of visit is normally for one year but always exceeding 6 months.
- (b) Exchange of visits by Senior Scientists to lecture, attend seminars, exchange ideas and information in their fields with the scientists in host country. The duration of visit is up to 2 months but not less than 2 weeks.

Under the above schemes i.e. INSA-RS and INSA-JSPS Programme, cost of international travel in respect of the scientists nominated are met by the sending side (INSA in case of Indian scientists to U.K. and Japan) and local expenses on board, lodging and incidentals, internal travel etc., are met by the receiving side/host country.

The sponsoring Indian Institute is required to grant full salary and allowances to its staff members nominated under the above programme for the entire period of their deputation and they will be treated as on duty.

### 3. INSA-INTERNATIONAL FOUNDATION FOR SCIENCE (IFS) SWEDEN FUNDING PROGRAMME

The Academy has a programme with the International Foundation of Science, Sweden. The IFS is established to promote and support in developing regions of the world meritorious research in the fields of the natural and social sciences and in technology. The foundation provides young scientists and technologists of outstanding merit from developing countries with financial and other support in their work. The research grants are given by IFS to individual scientists working in Universities and research institutes in developing countries. The grants awarded are rarely large—normally they do not exceed \$ 10,000 and an average grant amounts to about \$ 6,000. The grant covers expenses for equipment, expendable supplies, scientific literature, transports for field work or other essential parts of a specific research project.

Grants are awarded by IFS for a period of one year, and renewable upto a total project period of four years.

The Research grant applications are evaluated by the expert committee set up by the Academy according to the scientific ability of the applicant, the quality and promise of the research activity and its relevance to the needs of the country, and the local or regional importance of possible uses of research results. On the recommendation of the expert committee the applications are forwarded to IFS for their considerations.

When a research grant application is approved for funding by IFS a formal agreement is made between IFS, the grantee and the Institute of the grantee. The Institute undertake to administer the grant and to provide the localities, salaries and other facilities necessary for the project. Instruments and other

equipment received from the project will become the property of the Institute.

Till to date 30 research projects from India are receiving grants from IFS under this programme.

#### 4. EXCHANGE PROGRAMME WITH OTHER ACADEMIES

The Academy also under this programme nominates and supports the visit of senior scientists upon invitation received from time to time from various neighbouring countries to attend their academic Conventions/Anniversaries and to deliver scientific lectures in a way to look forward for establishing similar exchange programmes in particular with countries like Sri Lanka, Bangla Desh, Australia, Nepal etc. On reciprocal basis invitations are also extended to eminent scientific personalities of the above countries to attend similar academic functions in the country.

## INDO-SOVIET COLLABORATIVE PROGRAMME

The Academy of Sciences USSR and the Govt. of India in 1968, agreed to enter into active collaboration in identified scientific areas and also for exchange of scientific personnel between the two countries. The work relating to the Indo-Soviet Collaboration in the field of science was entrusted by the Govt. of India to the Indian National Science Academy. This was followed by signing an agreement on scientific exchanges and scientific cooperation between the Academy of Sciences USSR, and the Department of Science & Technology, Govt. of India on 18th February, 1975. A delegation of eminent Indian scientists led by Dr B. P. Pal, the then President of the Academy visited USSR in 1976 and identified areas of investigation for joint Collaborative programme.

The Indian National Science Academy acts as a coordinating body for implementation at the Indo-Soviet programme. The main objectives of this joint Programme are to provide broad opportunities for exchange of scientific delegations to joint developmental project work and arrangement of bilateral symposia on problems of mutual interest. The expenses on travel are borne by the sending country while expenses on local hospitality are met by the host country.

Indo-Soviet joint Committee on the Indian as well as Soviet side examine the achievements of this joint venture and also review and recommend new proposals put forward from time to time. On the Indian side there are three panels of experts to give their opinion regarding formulation, modification and implementation of the projects under the respective fields of expertise. The panels are as follows :

- i) Mathematics, Physics, Astrophysics
- ii) Chemistry and Biological Sciences

### iii) Earth Sciences including Oceanography

The opinions of the above panels are put up before the Indo-Soviet Joint Committee (Indian side) for their consideration. The Indo-Soviet Joint Committee (Indian side) and the panels are reconstituted every year.

The above programme has been implemented through identification of 17 projects with association of various Indian and Soviet participating Institutions as working groups for each Joint Scientific project. Work under the above 17 projects is reviewed from time to time by both sides for evaluating the status of achievements. Five new projects are under process of implementation. Under this programme several visits by Indian and Soviet Scientists are undertaken during the course of the programme for scientific discussion pertaining to specific project work. Several equipments are received from time to time from the Soviet side for implementing the project.

Another important feature of this Collaborative Programme is the organization of bilateral symposia, workshops and conferences in fields of mutual interest. The theme of the Symposia usually depends upon the field of current interest. Such bilateral gatherings give more avenues to the scientists to get close with the experts from both the countries eventually to evolve new ideas of research activities which acts as a preliminary base for initiating joint project activities between the Institutions interested in Collaborative investigation.

Bilateral Symposia/Workshops/Conferences are organised alternately in India and USSR in the following fields.

- i) Chemistry of Natural products ;
- ii) Earth Sciences ;
- iii) Embryology of Crop plants ;
- iv) Indo-Soviet Symposium on Gene Pools ;
- v) Genetics and Selection of Cultivated Plants ;
- vi) A joint Conference on Solid State Materials.

# RULES OF THE INDIAN NATIONAL SCIENCE ACADEMY

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## NAME

1. The society shall be called the Indian National Science Academy.

## OBJECTS

2. The objects of the Indian National Science Academy are:

- (a) The promotion of natural knowledge in India including its practical application to problems of national welfare.
- (b) To effect co-ordination between scientific academies, societies, institutions, and Government scientific departments and services.

- (c) To act as a body of scientists of eminence for the promotion and safeguarding of the interests of scientists in India; and to present internationally the scientific work of India.
  - (d) To act through properly constituted National Committees in which other learned academies and societies will be associated, as the National Research Council of India for undertaking such scientific work of national and international importance as the Council may be called upon to perform by the public and by the Government.
  - (e) To publish such proceedings, journals, memoirs and other publications as may be found desirable.
  - (f) To promote and maintain a liaison between Science and Letters.
  - (g) To secure and manage funds and endowments for the promotion of science.
  - (h) To do and perform all other acts, matters, and things that may assist in, conduce to, or be necessary for the fulfilment of the above-mentioned aims and objects of the Academy.
- 

## CONSTITUTION

3. The Academy shall consist of Fellows and Foreign Fellows.
- (a) **Fellows**, the number of whom shall be limited by the method of election. Those who accept nomination as Fellows before the inauguration of the Academy up to a limit of 125, shall be the Foundation Fellows.

In the first year of the Academy not more than 25 Fellows plus such vacancies as may exist in the initial 125 Foundation Fellows shall be elected, and thereafter annually not more than 15 Fellows shall be elected.

Beginning with the year 1976 not more than 30 Fellows shall be elected annually.

- (b) **Foreign Fellows**, the number of whom shall be limited to 100, and who shall be persons eminent for their

knowledge of, or contributions to science, or the welfare thereof, and domiciled outside the territorial limits of India, who have in some way contributed or can contribute to the progress of science in the country.

4. Persons of all nations shall be eligible for Fellowship of the Academy.

---

### ADMINISTRATION AND OFFICERS

5. The administration, direction, and management of the affairs of the Academy shall be entrusted to a Council composed of the Officers of the Academy — namely, a President, two Vice-Presidents, a Treasurer, two Secretaries, a Foreign Secretary and two Editors of Publications together with 18 other Fellows making a total of 27. In addition, there shall be provision for an Additional Member of Council to be nominated by each of the Cooperating Academies and the Indian Science Congress Association from amongst the Fellows of the Academy. Further, there shall be provision for the Government of India to nominate from amongst the Fellows of the Academy their representative on the Council as an Additional Member. Further, the immediate Past-President shall be an *ex-officio* Additional Member of the Council.

6. Not more than one of the offices of the President, Vice-President and Secretary shall be held by the same person.

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### ELECTION AND ADMISSION OF FELLOWS

7. The election of Fellows shall be governed by Regulations framed by the Council, but these Regulations shall provide for following points, from which departure can be made only after reference to the whole body of Fellows.

(a) In the first year of the Academy, the number of new Fellows shall be limited to 25 plus such vacancies as may exist in the initial 125 Foundation Fellows.

- (b) Beginning with the year 1976 the number of Fellows elected shall be limited to 30 annually, till such time as the total number of Fellows reaches 700.
- (c) Each candidate shall require a certificate to be signed on personal knowledge by a minimum of three Fellows.
- (d) The selection from the total list of candidates recommended to the Academy for election shall be made by the Council, but the election shall be conducted by postal ballot of the Fellows.
- (e) Provision for the election of persons who, in the opinion of the Council of the Academy, either have rendered conspicuous service to the cause of science or are such that their election would be of signal benefit to the Academy, provided that not more than two persons shall be so elected in any one year, and that if two persons be elected in any year, there shall be no election in the following year.

8. The Secretaries shall send a written announcement of the election to the candidates who have been duly elected, and shall therewith send a copy of the Obligation to be signed, and of the Rules and Regulations for the time being in force.

9. An admission fee of Rs 32 shall be due on election from the persons elected. If this fee is not paid within three months after issue to such person of the intimation of his election as Fellow, such election shall become inoperative. Provided that the Council shall have power to reinstate him with full privileges after his admission fee and the first annual subscription have been paid within a period not exceeding twelve months from the date of his election. In the case of a Fellow elected under the provisions of Rule 7(e), the Council may, at their discretion, not require payment of the admission fee.

10. No person, although duly elected according to the Rules and Regulations of the Academy, shall be entitled to exercise the rights and privileges of Fellowship, nor shall his name be entered in the list of Fellows, until he has paid his admission

fee and his first annual subscription, and until he has signed and returned the Obligation.

11. The payment of such admission fee and first annual subscription and the signature of the Obligation shall be the commencement of effective Fellowship and shall be equivalent to the expression of a direct acquiescence in all Rules and Regulations of the Academy then in existence, and of an undertaking to be bound by them and by such as may thereafter be passed, as hereinafter provided.

12. Rules 9 to 11 shall be written or printed on the letter of announcement of election sent to Fellows by the Secretaries under Rule 8.

13. Every new Fellow who has paid his admission fee and subscription for the current year, and has returned the Obligation, signed and addressed to the Secretaries shall, at the first General Meeting which he attends, be presented by a Fellow to the Chairman who addressing him aloud by name shall say, 'In the name and by the authority of the Indian National Science Academy, I admit you a Fellow thereof', and will present him with a diploma in a form prescribed by the Council certifying his election to the Academy, after which the Fellow shall subscribe a duplicate of the aforesaid Obligation in a book to be kept for the purpose.

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#### THE OBLIGATION TO BE SUBSCRIBED

14. Every person elected a Fellow of the Academy shall, before his admission, subscribe the Obligation in the following words :

*I, the undersigned, do hereby engage that I will endeavour to promote the interest and welfare of the Indian National Science Academy and observe its Rules and Regulations, so long as I shall continue a Fellow thereof.*

*(Signed)*

## ELECTION OF FOREIGN FELLOWS

15. The procedure of electing Foreign Fellows shall be the same as for the election of Fellows but the number shall be limited to eight in the first year of the Academy and four in each successive year; and beginning from the year 1974 the number shall be limited to *eight* in each successive year.

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## PRIVILEGES OF FELLOWS

16. Fellows shall be entitled to the following rights and privileges :

- (a) To be present and vote at all General Meetings.
- (b) To propose and recommend under Rule 7(c) candidates for Fellowship.
- (c) To introduce visitors at the General Meetings of the Academy.
- (d) To have personal access to the library of the Academy.
- (e) To take out books, plates, drawings, manuscripts, etc. from the library, subject to such Regulations as may be prescribed by the Council.
- (f) To receive, *gratis* copies of the *Proceedings* and monographs of the Academy issued during the continuance of their Fellowship, and of such other publications as the Council may decide from time to time and subject to the discretion of the Council, to purchase, at a reduced price, any of the Academy's publications.
- (g) To fill any office in the Academy on being duly elected thereto, subject, however, to the proviso that any Fellow appointed to any office in the Academy to which a salary or emolument is attached shall lose, for the time being, the privilege of voting.
- (h) To offer papers and communications to be read before the meetings of the Academy.

17. Fellows living outside the territorial limits of India shall be entitled to the privileges contained in Clauses (a), (b), (c), (d),

(f) and (h), of the preceding Rule, and to serve on any committee appointed by the Council save that they shall not be entitled to vote except on such Committee.

18. Foreign Fellows shall be entitled to the privileges contained in Clauses (a), (d), (f) and (h) of Rule 16 and to serve on any Committee appointed by the Council save that they shall not be entitled to vote except on such Committee.

### SUBSCRIPTIONS OF FELLOWS

19. The subscription of Fellows shall be Rs 36 per year. Fellows who became Non-Resident before 1950 will continue to pay Rs 16 per annum according to old Rules. In the case of a Fellow, who is a member of other Science Academy or Academies in India working in co-operation with the INSA in accordance with the Regulations for co-operating Academies, a reduction of Rs 12 annually, shall be allowed on the full subscription of Rs 36 on the evidence of a certificate from a co-operating Academy, provided that in subsequent years he himself certifies that he continues to be a member of a co-operating Academy. In the case of a Fellow elected under the provisions of Rule 7(e), the Council may, at their discretion, not require payment of the annual subscription.

Such Fellows as have already paid their subscription for thirty years will be exempted from further payment of subscription.

20. Subscription shall be due on the first day of each calendar year.

21. The full subscription of the year in which a person is elected a Fellow shall be due from him on election, unless such election has taken place after the 30th of June in which case only half the annual subscription shall be due in respect of that year.

22. No Fellow whose subscription is in arrears for six months shall be permitted to enjoy the rights or exercise the privileges of a Fellow, until he has paid up all arrears due from him.

23. Any Fellow of the Academy may, after he has paid his admission fee, compound for the payment of all future subscriptions by the payment of Rs 450 either in a single sum or by instalments within one calendar year.

24. No admission fees or subscriptions shall be due from Foreign Fellows.

25. Any Fellow already belonging to the Academy may at any time compound for all future subscriptions by the payment of the above compound fee, less Rs 15 for each full annual subscription of Rs 36 (or Rs 24 on being a member of a co-operating Academy or Academies) he may have already paid, provided always that under no circumstances shall the compounding fee be reduced below Rs 150.

Any Fellow who became a Non-Resident Fellow prior to 1950 may, however, compound for the payment of all future subscriptions as a Non-Resident Fellow by the payment of Rs. 200 less Rs. 7 for each full annual subscription of Rs. 36 (or Rs. 24 in case he was a member of a co-operating Academy or Academies) he may have already paid as a Resident Fellow and for each annual subscription of Rs 16 he may have already paid as a Non-Resident Fellow, provided always that under no circumstances shall the compounding fee be reduced below Rs. 70.

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### CESSATION OF FELLOWSHIP

26. Any Fellow may withdraw from the Academy by signifying his wish to do so, by the letter addressed to the Secretaries.

27. A letter of withdrawal may be cancelled by the Secretaries at the request of the sender within six months of its receipt on payment of all sums for which the Fellow would have been liable had his Fellowship not been interrupted, and he shall thereupon recover all rights of Fellowship without the form of re-election. The Council shall have power to waive in special cases the limit of six months specified above.

28. Any Fellow who shall cease to be a Fellow of the Academy, either by voluntary withdrawal or by forfeiture of his Fellowship, under Rules 30 and 33, shall continue liable to the payment of the annual subscription until he shall have discharged all sums (if any) due by him to the Academy and shall have returned all books or other property (if any) borrowed by him from the Academy, or shall have made full compensation for the same if lost, damaged, or not forthcoming.

29. Fellows who have withdrawn from the Academy shall be eligible for re-election; and if re-elected, only half the usual admission fee shall be due from them.

30. When any Fellow has omitted to pay the subscriptions of two successive years, the Council shall cause a registered letter to be sent to him, directed to his last known address informing him of the amount of the sums due by him and that, unless they are paid within six months from the receipt of such letter, his name shall be struck off the list of Fellows, as provided in the next Rule.

31. If he omits to pay the amount within the time so limited, his name shall be suspended as a defaulter at any General Meeting, and unless the amount be paid in the meantime, shall remain so suspended at the Academy's Office till the next General Meeting when the Chairman shall declare such Fellow to be removed from the Academy for non-payment. This act shall be notified in the Annual Report of the Academy.

32. A person who has ceased to be a Fellow under the operation of Rules 30 and 31 may again be made a Fellow by a resolution of a General Meeting, on a payment of all arrears and such further subscriptions as he would have been chargeable with under these Rules if his Fellowship had continued, but he shall not be eligible for election under Rule 7.

33. If any Fellow of the Academy shall wilfully disobey Rules or Orders of the Academy or Council, or shall commit wilful breach of order at any of the General Meetings, or having unwittingly committed shall persist in any disobedience

or breach of order, after being admonished by the president, or if for any other reasons it shall appear to the Council that the name of a Fellow should not remain on the rolls, he shall be liable to be removed from the Academy. Whenever there shall appear cause as aforesaid, for the removal of a Fellow from the Academy, if a majority of the Council shall, after due deliberation, determine by ballot, to propose to the Academy the removal of the said Fellow, the President shall, at any General Meeting of the Academy, announce from that Chair such determination of the Council; and at the Meeting after that at which the said announcement has been made, the proposition shall be submitted to ballot. If three-fourths of the Fellows present and voting at such General Meeting vote for the removal of such Fellow, he shall be removed from the Academy.

34. Fellows removed under the operation of Rule 33 shall not be eligible for re-election until the expiration of one year from the date of such removal.

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### THE COUNCIL AND OFFICERS

35. The election of Officers and other Members of the Council shall take place at the Annual General Meeting of the Academy.

36. The Council shall prepare, in accordance with the following procedure, a list of the names of those persons whom they recommend for election as President, Vice-Presidents, Secretaries, Foreign Secretary, Treasurer, Editors of Publications, Additional Secretaries and other Members of the Council for the ensuing year :

(i) The Council shall determine, at the Meeting to be held in May, the vacancies that will occur among the Officers and other Members of the Council during the ensuing year as per Rules 37 and 38.

- (ii) The list of the Council of the current and two preceding years indicating the vacancies that will be occurring in the ensuing year, shall be circulated in May to all Fellows in good standing (whose subscriptions are not in arrears for more than six months), inviting suggestions regarding the filling up of vacancies to reach the office by a date to be specified by the Council.
- (iii) The suggestions received shall be circulated to the Members of the Council by a date prescribed by the Council for expression of their views, and considered at the Meeting of the Council to be held in August when final nominations shall be made out of the names suggested.
- (iv) The list of nominations shall be printed and a copy sent by post as a voting paper to each Fellow of the Academy at least one month before the date of Annual General Meeting of the Academy in October. These voting lists shall have a blank column for such alterations as any Fellow may wish to make. These voting papers shall be returned to the Secretaries at least a week before the date fixed for the Annual General Meeting.
- (v) The manner of election shall be as follows :
  - (a) Two scrutineers shall be appointed by the Chairman with the approbation of the majority of the Fellows present.
  - (b) The scrutineers shall count the voting papers, and shall report to the Chairman the names of those having a majority of votes for election as the Officers and other Members of the Council of the Academy, and these names shall be announced from the Chair as duly elected.
  - (c) If any voting paper contains more than the proper number of names, or includes the name of a candidate who is not eligible, it shall be void for uncertainty, and shall not be regarded by the scrutineers.

(d) If there be an equal number of votes for any two or more candidates, the scrutineers shall announce the fact, and the Chairman shall proceed to decide by lot which candidate shall have the preference.

(vi) The new Council shall assume office after the Anniversary General Meeting.

37. (a) No person shall hold the office of the President for more than *two* consecutive years, nor after vacating office shall a person who has held the office of President be eligible for re-election until after the fifth Anniversary General Meeting following that at which he vacated the office of President. No Vice-President shall be eligible to hold office as such for more than *two* consecutive years, and no person on retirement from the office of the Vice-President shall be eligible for re-election to the same office until after the expiry of one year.

(b) The Secretaries, the Foreign Secretary, the Treasurer and the Editors of Publications shall be eligible to hold office for a period of *four* consecutive years and shall not be eligible for re-election to the same office until after the expiry of two years.

38. Each year *six* Members of the Council not being the President, Vice-Presidents, Treasurer, Editors of Publications or Secretaries shall retire from the Council and shall not be eligible for re-election until after the lapse of one year from the date of their retirement. The retirement shall be decided by seniority, except in so far as vacancies have not otherwise occurred. In the event of equal seniority, the seniority shall be decided by lot. Interim vacancies shall be filled by the Council only for the unexpired period.

39. In the event of a vacancy occurring during the year in the office of the President, the Vice-Presidents, the Secretary, the Treasurer or the Member of the Council, it shall be competent to the remaining Members of the Council to fill up such vacancy, subject to its confirmation by the next subsequent General Meeting. The Council may also, for specified reasons and subject to the same confirmation, elect Additional

Members as occasion may require within the sanctioned maximum number.

40. The Council, as constituted in accordance with these Rules, shall continue in office notwithstanding that their period of office may have, in fact, expired, until their successors have been duly appointed.

41. In the absence of the President from whatever cause, his duties will devolve in the following order of seniority: Vice-Presidents, and the Members of the Council. In the case of the sudden vacation of office in the interval between two Meetings of the Council by the Treasurer, or any one of the Secretaries, the President shall designate one of the Members of the Council to take his place and exercise his functions, until the next Meeting of the Council. In case of the absence of both the Secretaries from a Meeting of the Council or of the Academy, the Chairman shall designate another Member of the Council to take his place and exercise his functions during the Meeting or until the next Meeting of the Council.

42. In the absence from headquarters of either of the Secretaries or the Treasurer, the President shall designate one of the Members of the Council to continue his functions until his return to headquarters, subject to the confirmation of the Council at the first opportunity. Such Member of the Council shall be entitled to sign papers for the Secretary or the Treasurer respectively.

43. The powers and duties of the Council shall be as follows :

- (a) To manage the affairs of the Academy, and for such purpose to make such Regulations as may to them appear conducive to the good administration of the Academy and the attainment of the aims and objects of its foundation, provided always that such Regulations be not inconsistent with anything contained in these Rules, that they be reported for the information of the next General Meeting, and they be subject to

rescission or alteration by the Council, or by any General Meeting.

- (b) To consider a communications to the Academy and in the case of those to be submitted to a General Meeting, to determine the order and manner of such submission.
- (c) To superintend and direct the publication of the periodicals or other works published by the Academy.
- (d) Subject to confirmation by the next subsequent General Meeting, to appoint as many salaried officers, clerks, or servants, as they may deem necessary; to define their duties, allowances, salaries, gratuities, and privileges; and to suspend or dismiss them, or dispense with their services, as occasion may require.
- (e) To exchange for other property, or otherwise dispose of in such a manner as may, in their opinion, best conduce to advance the objects and interests of the Academy, any duplicate books, maps, specimens, etc., belonging to the Academy.
- (f) To prepare and submit to the Annual General Meeting a report on the general concerns of the Academy. A copy of this report along with the audited statement of accounts for the year ending 31 March and estimated income and expenditure for the succeeding year shall be placed on the table for information of the Fellows present and shall form a part of the Year-Book to be made available to the Fellows in succeeding January.
- (g) In conformity with provisions of the Registration Act No. XXI of 1860, Sections 9 and 10, after the Academy has been registered, the Council shall be empowered, subject to the sanction of a General Meeting to take legal proceedings under the Act for the recovery of any sums due by Fellows who, after receiving due notice of their liabilities, shall refuse or fail to discharge them.

44. The powers and duties of the President shall be as follows :

- (a) To preside at all Meetings of the Academy and of the Council, and to regulate the proceedings at such Meetings.
- (b) To ensure due effect being given to these Rules, and to the Regulations, made by the Council under Rule 43, Clause (a).
- (c) To be *ex-officio* Member of all Committees appointed by the Council.
- (d) In the case of doubt as to the interpretation of any of these Rules, to decide on the interpretation. In such case the President's interpretation shall hold until the next Meeting of the Council, when the interpretation of the Rule should be discussed and finally determined.

45. The duties of the Secretaries, subject to such delegation of duties as may be made in accordance with Rule 48, shall be as follows :

- (a) To conduct the correspondence of the Academy and of the Council, and to sign all letters and papers emanating from the Academy, except in so far as another provision is made in these Rules.
- (b) To attend the Meetings of the Academy and of the Council. To take minutes of the proceedings of such Meetings during the progress; and, at the commencement of every such Meeting, to read aloud the minutes of the previous Meeting.
- (c) At the General Meetings, to announce the presents made to the Academy since their last Meeting; to read the names of candidates for Fellowship, the original papers communicated, and the letters addressed to the Academy.
- (d) To prepare for submission to the Annual General Meeting a list of Fellows, corrected up to date.

- (e) To enter or cause to be entered in the Minute-Books, all the proceedings of the Academy and of the Council before the following Meeting, and to see that all letters and papers and documents of every kind connected with the business of the Academy are properly filed and preserved.
- (f) To edit the publications of the Academy unless separate Editors be appointed by the Council.
- (g) To exercise general supervision over the servants and affairs of the Academy, and to assist in carrying out the Rules, and the Regulations and Orders made by the Council under Rule 43, Clause (a).
- (h) To be *exo-officio* Members of the Committees appointed by the Council from time to time, except Sectional Committees and other Committees as appointed under Rule 60.

46. The duty of the Secretary for Foreign Correspondence shall be to conduct correspondence with foreign countries, relating to the business of the Academy, to return thanks for presents from foreigners made to the Academy, and to forward to persons elected Foreign Fellows, the Diploma certifying their election to the Academy.

47. The Additional Secretaries, if any and when more than one, may by mutual agreement among themselves and with the Secretaries, and subject to the general control of the Council, make such partition of their duties as they may find most convenient. The arrangements made by them and any alterations in the same, shall be communicated to the Meeting of the Council which shall take place next after such arrangement or alteration.

48. Should the Academy find it desirable to entertain the services of a paid Executive Secretary, portion of the duties of the Secretaries outlined in Rule 45 may be delegated to him as the Council may decide.

49. The Treasurer shall receive and hold for the use of the Academy, subject to Rule 66, all money paid to the Academy;

he shall disburse all sums due from the Academy and shall keep exact accounts of all such receipts and payments. The Treasurer shall be *ex-officio* Member of all the Committees appointed by the Council from time to time, except Sectional Committees and other Committees as appointed under Rule 60.

50. At the expiration of every half year, the Treasurer shall prepare a list of the names of those Fellows who may be in arrears of their subscriptions for six or more months, and shall submit it for the orders of the Council at the next Council Meeting.

51. The Editor or Editors shall be responsible for the preparation and printing of the publications of the Academy and shall have the right of direct correspondence with the authors and with the press. He or they must be chosen from amongst Members of the Council.

### MEETINGS OF THE ACADEMY

52. General Meetings of the Academy shall be of four kinds, viz:

- (i) Ordinary
- (ii) Annual
- (iii) Anniversary
- (iv) Extraordinary

53. The following Rules shall be applicable to all General Meetings of the Academy:

- (a) Seven Fellows shall constitute a *quorum*.
- (b) The President, or in his absence, one of the Vice-Presidents, shall take the Chair; in their absence the Senior Member of the Council present shall take the Chair. If neither the President, nor one of the Vice-Presidents nor a Member of the Council be present, on the expiration of fifteen minutes after the hour fixed for the Meeting, the Fellows present shall proceed to elect a Chairman.

- (c) The business of each Meeting shall be proceeded within the order hereinafter prescribed in Rules 55, 56 and 57, provided always, that, on written notice being given to the President or one of the Secretaries, not less than 48 hours before the hours of Meeting, a motion for the immediate transaction of urgent business may be made; and if such motion be seconded and carried, this Rule shall be suspended.
- (d) With the exception mentioned in the last Clause, notice of motion on any matter of importance shall be given at the General Meeting preceding that at which the subject is to be disposed of or by letter not less than one month before the General Meeting at which the subject is to be disposed of, in order that Fellows who take an interest in the question may have an opportunity of informing themselves regarding it and expressing their assent or dissent; and no motion of which notice has not been given shall be carried at the Meeting at which it is proposed, if the President or Chairman of the Meeting rules that it should be postponed.
- (e) All motions and amendments except those emanating from the Council shall require to be seconded; otherwise they cannot be put. Amendments must be in writing, unless excused by the Chairman. Not more than a single amendment to the original motion shall be laid before the Meeting at one time. When any such amendment has been negatived or has been allowed to take the place of the original motion, other amendments involving fresh points may be proposed.
- (f) Each Fellow present is entitled to speak once and once only, to each substantive motion and to each amendment. Nothing in this Rule shall be construed to prevent any Fellow from addressing the Chairman on a point of order, or to prevent the mover of an original motion with the permission of the Meeting,

from speaking a second time by way of explanation or reply.

- (g) The usual method of voting shall be by show of hands; provided always that the votes on any particular subject may be taken by ballot on a motion to that effect duly carried; and, in the cases especially provided for by these Rules, the votes shall be so taken.
- (h) The Chairman's decision on the show of hands shall be final unless a division be called for. It shall be competent to any Fellow present to call for a division.
- (i) The Chairman shall not vote with the rest of the Meeting but when the votes for and against are equal he shall have a casting vote.
- (j) Any Fellow shall have the right of recording his protest, together with the reasons for the same, against the decision of the majority upon any question, provided that such protest be forwarded in writing to one of the Secretaries within two weeks from the date of the Meeting at which the decision protested against was arrived at.

54. The General Meeting shall be held at such times and in such places as the Council may decide, so that the total number of General Meetings held during a calendar year is not less than *five*, of which one should be held at the city selected for the Meetings of the Indian Science Congress Association for that year and during or close to the session thereof; this Meeting shall be called the Anniversary General Meeting. One of the Meetings held during the year shall be termed the Annual General Meeting, and others, the Ordinary General Meetings.

55. The order of business at such meetings shall be as follows:

- (a) The minutes of the last Meetings shall be read and confirmed after correction, if necessary, and signed by the Chairman.

- (b) Fellows present who have not signed the Obligation Book shall do so and shall in addition be presented to the Chairman in accordance with the provisions of Rule 13.
- (c) The presents made to the Academy since their last Meeting shall be announced and exhibited.
- (d) Such business as is necessary in connection with the election of Fellows according to the Regulations framed by the Council shall be transacted.
- (e) Notice of intended motions shall be given.
- (f) Motions of which notice was given at the preceding Meeting or by post in accordance with Rule 53, Clause (d), shall be disposed of, save as provided in Clause (g) of this Rule and in Clauses (c) and (d) of Rule 53.
- (g) Matters of current business and routine shall be disposed of. If any question arises as to whether any particular question is one of current business and routine, it shall be decided by the Chairman.
- (h) Reports and communications from the Council shall be submitted for consideration.
- (i) Papers and communications received by the Academy shall be read in the order prescribed by the Council under Rule 43 (b).
- (j) The Chairman shall announce the names of new Fellows and Foreign Fellows, if any, elected at the Meeting and invite those persons to complete formalities of Rule 13.
- (k) The chairman shall have the power, when he considers that Meeting has been unduly prolonged, to order any uncompleted business, except that provided for in (j) to stand over the next Meeting.

56. The Annual General Meeting of the Academy shall be held under the following Rules and for the transaction of the following business :

- (a) The Meeting shall be held at the Headquarters of the Academy on such date as the Council may prescribe. If a *quorum* be not present, the Meeting shall stand adjourned until a date to be decided by the Chairman not more than two weeks later.
- (b) Notice of the Meeting, of the hour and the date at which it is to be held, and the place of Meeting, and of the business to be transacted thereat, shall be given to Fellows not less than *two weeks* before the date of the Meeting.
- (c) The business to be transacted at the Meeting shall be to : (i) hear the Annual Report prepared by the Council in accordance with the provision of Rule 43 Clause (f); (ii) hear the Presidential remarks reviewing the work of the Academy; (iii) transact other business of which notice has been given as provided for in Clause (b); (iv) elect the Officers and other Members of the Council for the ensuing year as provided in Rule 36; (v) elect Fellows unless the Council decide that this can be more conveniently done at a Meeting of the Council or at an Ordinary General Meeting.

57. The Anniversary General Meeting of the Academy shall be held under the following Rules and for the transaction of the following business :

- (a) The Meeting shall ordinarily be held in January every year at the city selected for the Meeting of the Indian Science Congress Association and during or close to the session thereof. If a *quorum* be not present, the Meeting shall stand adjourned until a date to be decided by the Chairman not more than a week later.
- (b) Notice of the Meeting, of the hour and the date at which it is to be held, and the place of the Meeting and of the business to be transacted thereat, shall be

given to Fellows not less than *two weeks* before the date of the Meeting.

- (c) The business to be transacted at the Meeting shall be:
  - (i) To hear the Presidential Address; (ii) to transact other business of which notice has been given as provided in Clause (b).

58. The following Rules shall be applicable to Extraordinary General Meetings :

- (a) Such Meetings may be convened by a majority of the Council, and shall be convened by the President, when called on to do so by a requisition signed by not less than *ten* Fellows, and stating the special business for which it is desirable that an Extraordinary General Meeting should be convened.
- (b) Notice of the day and hour of the Meeting, and of the special business to be transacted thereat, shall be given to Fellows not less than *one month* before the date of the Meeting, provided that, if the business be very urgent, it should be competent to the Council to substitute any earlier notice than that of one month; but no business of the nature specified in Rule 63, Clause (c) shall be deemed urgent, within the meaning of this Clause.
- (c) No other business than that included in the notice shall be transacted at such Meeting, nor shall any stranger be permitted to be present thereat.

#### MEETINGS OF THE COUNCIL AND OF COMMITTEES APPOINTED BY THE COUNCIL

59. The following Rules shall be applicable to Meetings of the Council :

- (a) The Council shall meet at such times as may be deemed advisable, and may make such Regulations not inconsistent with these Rules as they may think

proper for the summoning and holding of the Meetings of the Council and for the transaction of business at such Meetings.

- (b) The President may himself also summon a Special Meeting of the Council giving notice to all other Members.
- (c) *Five Members shall form a quorum*
- (d) The President, or, in his absence, one of the Vice-Presidents shall take the Chair. If neither the President, nor one of the Vice-Presidents be present within fifteen minutes after the hour appointed for the meeting, the Fellows present shall elect a Chairman.
- (e) The ordinary method of voting shall be by show of hands, but the votes shall be taken by ballot on motion to this effect being duly carried, or when the Rules provide for such method of voting.
- (f) The Chairman shall be entitled to vote with the other Fellows, and when the votes are equal, he shall have a second and casting vote.
- (g) The voting on any question, except when it be one of adjournment, shall on the demand of any Fellow present, be postponed to the next ensuing Meeting, when such question shall be disposed of.
- (h) Minutes of the proceedings of every Meeting of the Council shall be taken during their progress by one of the Secretaries, or, in the case of his absence, by some Fellow present whom the Chairman shall appoint for the occasion. The Minutes shall afterwards be circulated to the Fellows present at the Meeting, for the purpose of ascertaining their correctness, and then be entered in a Minute-Book and read at the next Meeting of the Council and signed by the Chairman.
- (i) A copy of the Minutes of each Meeting of the Council shall be sent to all Members of the Council resident in India.

60. The Council may elect, from among their own body, Committees for the consideration of special subjects. They may also appoint Foreign Fellows or Fellows other than Members of the Council, who are competent and well versed in the subjects to be referred to these Committees, to be Members of such Committees.

61. Committees shall cause minutes to be taken of their proceedings. They shall report to the Council on all matters referred to them, producing such minutes if called for.

62. Committees shall appoint their own Chairman and Secretary. Their duties, etc., in other respects may be defined by the Council who may also dissolve such Committees when they think proper.

#### VOTES OF FELLOWS

63. The votes of Fellows shall be taken by voting papers (transmitted to them by the Secretaries) in any of the following cases:

- (a) When the Council at their discretion consider it for the interests of the Academy that an appeal should be made from the decision of a General Meeting to the whole body of Fellows.
- (b) When *ten* or more Fellows sign a requisition, calling upon the President to make such an appeal.
- (c) When any proposal is made respecting expenditure of a large amount, changes of organization, amendment or alteration of the Rules, or generally, when any question arises which, in the opinion of the Council, should be referred to the whole body of Fellows.

64. Before circulating any question coming under Rule 63 for the votes of the general body of Fellows of the Academy, the Council shall cause to be sent to every Fellow, at least *two weeks* before the General Meeting at which such question is to be proposed, a printed circular in which shall be set forth the nature of the proposal and the reason for it, in order, that it may be duly discussed at such General Meeting. A statement of any objections that may be raised at the Meeting against the proposal shall be circulated with the voting papers.

65. Any question referred to the votes of the whole body of Fellows shall be brought before the General Meeting after a period of *thirty* days from the issue of the voting papers for the return of votes. The Chairman shall proceed to examine the votes and report the result.

### FUNDS AND ACCOUNTS

66. (a) The accounts and vouchers of the receipts and expenditure of the Academy shall be subjected to the examination of the Standing Finance Committee which shall include two representatives of the Government of India at such intervals as the Council may prescribe, and shall be subject to the annual audit. Separate accounts shall be kept of all funds administered by the Academy on behalf of Government. The annual Statement of Accounts shall, after professional audit, be printed in the Report of the Academy.

(b) All financial matters of the Academy including matters affecting the quantum of Government grant and those dealing with the conditions of service, recruitment, promotion, etc., of the Staff of the Academy shall be considered by the Finance Committee before they are placed in the Council for discussion. No such matter shall be considered by the Council unless it has first been considered by its Finance Committee.

67. All sums received from the Fellows as Compounding Fees shall be regularly invested by the Treasurer as soon as possible after the receipt thereof and only the interest accruing therefrom shall be considered available for the general expenditure of the Academy.

68. All securities and money, the property of the Academy, shall be lodged for safe custody in the State Bank of India.

69. The Council shall be competent to decide the limit of amounts in respect of cheques to be signed by the Accounts Officer and the Executive Secretary and by the Executive Secretary and the Treasurer. In the absence from the Headquarters of either the Accounts Officer or the executive Secretary or both, the President shall designate any one or two of the other paid officers of the Academy, as the case may be,

to sign the cheques. The action shall be reported to the Council at the first opportunity.\*

### MISCELLANEOUS

70. No person appointed to any Office in the Academy to which a salary or any emolument, other than a conveyance allowance, is attached shall have the privilege of voting. If any Fellow be appointed to any such office, he shall be incapable of voting at the Meetings of the Academy as long as he continues to hold it, but shall not be deprived of his other privileges of Fellowship.

71. There shall be kept such record of the proceedings of the Academy, of its General Meetings and of the Meetings of the Council, as shall be, from time to time, prescribed by the Council. All Fellows shall be entitled to inspect such records.

72. All letters, notices, minutes of Fellows, and other documents connected with the business of the Academy shall be filed in the order of their dates, and shall be preserved.

73. Authors of the papers published in the Academy publications shall be entitled to receive, *gratis*, 50 copies of such papers, unless the Council otherwise prescribes.

74. When the introduction of any new Rule, or the alteration or repeal of any existing Rule, is recommended by the Council, or proposed by *ten* or more Fellows, the Council shall cause to be sent to every Fellow of the Academy entitled to vote, a statement of the proposed changes and the reasons for them, with a view to the votes of the general body of Fellows being taken as directed in Rule 65. Provided always that no change in the Rules shall be valid unless a majority of *three-fourth* of the Fellows who have voted shall be in favour of the proposed changes.

75. These Rules take effect from 22 October, 1964. All previous Rules are hereby rescinded as from that date.

\*The Council at its meeting held on 15th May 1978 decided as follows :

"Cheques upto Rs. 2,500/- may be signed by Accounts Officers and Executive Secretary and Cheques above Rs. 2,500/- be signed by the Executive Secretary and Treasurer".

# REGULATIONS OF INDIAN NATIONAL SCIENCE ACADEMY

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### (A) REGULATIONS REGARDING THE ELECTION OF FELLOWS

1. *Notice of Election of Fellows and supply of nomination forms*: A circular letter drawing attention of the Fellows of the Academy, to the last date on which nominations for Fellowship should reach the office of the Indian National Science Academy, New Delhi, shall be issued in the first week of September every year.
2. *Certificate of nomination*: Every nominee shall be proposed and recommended by a certificate in writing signed by four or more Fellows in good standing (i.e. who have paid their subscription for the current year). Of these, at least three shall certify from personal knowledge of scientific attainments of the can-

dicate. Either of the two Secretaries shall have the power to sign a certificate on behalf of a Fellow competent to sign for the particular discipline but not resident in India, on receiving a written request from him.

The nomination paper shall specify the name, age, profession, qualifications including list of publications and place of residence of the nominee in a form prescribed by the Council, and shall include a brief statement of the actual nature and value of the research work of the nominee and of his contribution to new knowledge.

A list of publications (as complete as possible) of the nominee and a set of reprints of his papers (particularly those in which the research and contribution to new knowledge referred to by the proposer are embodied) or other documents connected therewith should be sent with the nomination paper. The nominees should under no circumstances be asked to send any information/particulars to the Academy direct.

The proposer shall send the nomination paper to such other Fellows for their support who, in his opinion, will second and support the nominee. The nomination paper should be transmitted by one Fellow to another direct. After the required number of supporters have affixed their signatures as also given their own remarks about the nominee's suitability, the nomination paper shall be sent by registered post either by the proposer, seconder or any supporter to the Executive Secretary, Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi 110002, so as to reach him not later than the 15 November. The nomination paper along with reprints and other documents on being received at the office of the Executive Secretary, Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi 110002, shall be registered, with the date of receipt in a book to be kept for the purpose, and read at the next meeting of the Council.

3. All communications in respect of the nomination shall be carried on with the proposer and/or seconder.

4. *Names of nominees to be listed in December/January* : At the meeting of the Council of the Academy towards the end of December or beginning of January a list of all persons proposed on or before 15 November and subsequent to last announcement of the names of nominees, and also the names of those persons whose nomination papers are valid in accordance with the provision of Regulation 15 shall be drawn up classifying the persons according to the subjects without any reference to the dates of nomination papers of the nominees. The Council at this meeting shall consider and send the list of eligible nominees to the Sectional Committees for expression of opinion on the list of nominees referred to them; provided, however, that nomination papers of any person for election on the basis of his work in any other branch of Natural Science not coming within the purview of any of the existing Sectional Committees, shall be considered by the Council at the time of selecting the persons for Fellowship without being referred to any Sectional Committee for its recommendations.

5. *List of nominees to be printed* : Not later than the 31 March, a list arranged in alphabetical order together with brief statement of the actual nature and value of the research work of the nominee, names of the Fellows by whom each person is proposed, seconded and supported, and the year in which the nomination was considered for the first time shall be printed and a copy shall immediately thereafter be sent to every Fellow.

The fellows may make such observation/comments as they may wish to, about the suitability or otherwise as regards the candidates included in the list of nominations. The observations/comments received from the Fellows shall be placed before the relevant Sectional Committees, and later before the Council.

6. *Selection by Sectional Committees* : The Executive Secretary shall circulate by the 31 March to the Members of the Sectional Committees the list of persons proposed for election from respective sections, with a statement showing the research

work (as given in the nomination papers) of the individual nominee and shall request the members to send their recommendations along with reasons for the same to the Conveners of the respective Sectional Committees under intimation to the Executive Secretary at least a fortnight before the meeting of the Sectional Committees. The Members should only suggest a panel of names for the Fellowship without indicating any order of preference.

The Executive Secretary shall call meetings of the Sectional Committees in April-May, on the dates as may be decided by the Council in the calendar of meetings, to consider these recommendations. In case the attendance at any of the Sectional Committees is not full, the members attending it shall make a full report of their findings and send it to the members absent for their observation by a specified date. If comments of these members are not received by that date, their concurrence of the recommendations of the Committee concerned shall be presumed.

Within a fortnight from the date of the meeting of the Sectional Committees, the Conveners shall forward to the Executive Secretary the report of their Committees for consideration by the Council. The reports shall not merely set forth the list of persons recommended for election in order of priority, but shall bring out clearly the reasons for their recommendations and also highlight the work of the persons recommended.

*7. Circulation of recommendations of Sectional Committees to Council Members :* The recommendations of the Sectional Committees shall be circulated to all Members of the Council at least one month before the date of the Meeting of the Council to be held in August and comments on the recommended list, if any, invited from members, so as to reach the Executive Secretary at least fifteen days before the date of the meeting of the council in August. While forwarding the recommendations of the Sectional Committees to the Members

of the Council, the following information shall also be circulated :

- (i) Names of nominees considered by different Sectional Committees;
- (ii) Names of members of the Sectional Committees;
- (iii) Copies of all letters from the members of the Sectional Committees containing their original recommendations;
- (iv) Copies of comments of absentee members on the recommendations of the Sectional Committees.

8. *Selection by Council* : At the Meeting of the Council to be held in August the Council shall devote one full day entirely and exclusively for the purpose of considering such recommendations and shall then select by ballot a number not exceeding thirty to be recommended to the Fellows of the Academy for election but no such selection by the Council shall be valid unless nine members at least be present and vote; in the event of a tie, the Chairman shall have a second and casting vote.

9. It shall not be obligatory for the Council to recommend a certain fixed number of persons for election to Fellowship from each of the Sections. The Council shall be free to recommend a large number for any Section if there are more deserving persons in that Section and also not to recommend any, if, in the opinion of the Council, none is fit for election.

10. *Selected names to be communicated to Fellows* : Soon after selection by the Council in August, a circular letter shall be sent to every Fellow as a voting paper enclosing a printed list of the selected persons, with space for such alterations as any Fellow may determine to make in pursuance of regulation 12.

11. *Date of election* : The election of Fellows not included in the class referred to in Regulation 16 shall take place at the October statutory Meeting of the Council.

12. *Election procedure* : Each Fellow shall forward to the Executive Secretary the voting paper mentioned in Regulation 10, having placed a cross against names of those he wishes to be elected, and having scored out the names of any persons for whom he does not vote and having substituted the name of any other person or persons contained in the printed list sent in pursuance of Regulation 5, if he so desires. No voting paper shall be valid if (i) it contains more names than the number accepted by the council, (ii) it is signed, or (iii) it is not enclosed in a sealed envelope and forwarded to the Executive Secretary in an outer cover with a covering letter signed by the Fellow so as to reach the executive Secretary, Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi, 110002, by the 30th September.

13. At the Meeting of the Council to be held in October, two scrutineers shall be nominated by the President with the approbation of the members to assist the Secretaries in conducting the elections.

14. The scrutineers, after examining the voting papers, shall report to the President the number of votes received by each nominee. The President shall duly declare from the Chair the names of candidates who have been elected. In the case of a tie, the President shall have a casting vote. The result of election shall forthwith be notified to all the Fellows by post. This election, however, shall be effective from 1 January of the following year.

15. *Renewal of nominations* : Any nominee whose name shall have been printed in a previous list of nominees, but who shall not have been elected shall, unless his proposer or seconder withdraws his name before the 15 November immediately preceding an election, continue to be a nominee at that election; his name shall be placed in alphabetical order with those of the new nominees to be announced at the ensuing Statutory Meeting of the Council, provided always that the same certificate shall not be valid for more than five successive elections. In the case of a candidate's nomination becoming invalid for this

reason, the office should draw in the first week of October the attention of the proposer to the fact that this candidature would be invalid unless re-nomination is received by the 15 November.

Corrections of facts may be made upon the certificate after it has been sent, if initialled by the proposer and/or seconder, and marked unmistakably as new matter.

16. *Special elections* : In cases in which the Council is of opinion that in the interest of furthering the aims and objects of the Indian National Science Academy it is desirable that persons be elected Fellows of the Academy otherwise than as provided by Regulations 1 to 15 of these Regulations, the Council may recommend to the Academy for election of persons, who, in its opinion, either have rendered conspicuous service to the cause of science in India, or are such that their election would be of signal benefit to the Academy provided that no more than two persons shall be so recommended in any calender year and also that if two persons be elected in any one year, there shall be no election in the following year. The persons to be so recommended shall be selected by the Council by ballot, provided always that no person shall be so recommended unless he obtains *two-thirds* of the votes of the Members of the Council present and voting, the total number of votes registered in his favour being not less than seven.

17. At the Ordinary General Meeting of the Academy, immediately following the Meeting of the Council at which the selection of persons to be elected under Regulation 16 is made, the person or persons nominated shall be proposed for election by means of a certificate prepared in accordance with Regulation 2, no distinction, however, being made between personal and general knowledge. Such certificate shall remain with the Academy until the day on which a ballot is taken upon it. The name of the person so proposed shall be posted to each Fellow for voting by a date given on the ballot paper. The result of the ballot shall be ascertained at the next meeting of the Council after the close of the ballot, following procedure of Regulations 12 to 14.

## (B) REGULATIONS REGARDING THE ELECTION OF FOREIGN FELLOWS

1. A book shall be kept in which Fellows of the Academy may enter the names of those men of science whom they suggest as Foreign Fellows; or if the Fellow be not resident at the Headquarters of the Academy, he may send his suggestions by post, and ask one of the Secretaries to enter the proposals on his behalf in the book. Each entry shall be signed by the proposer, or by one of the Secretaries on his behalf, and be accompanied by a statement of the principal grounds on which the suggestion is made, and shall be valid for three years only.

2. A list of the persons so entered shall be sent to each Member of the Council, together with notice of the meeting at which the list will be considered. At the meeting, thus appointed, further entries may be made and the claims of those men of science whose names have been duly entered in the book shall be considered, and a selection of names shall be made, from among which the Council, at a subsequent meeting to be then appointed, may make nominations to the Academy. In making this selection, account shall be taken of expression of opinion received by post from Members of the Council absent from the meeting.

3. At the second meeting of the Council the selection of candidates to be so nominated for Fellowship up to the number permissible under Rules 15 shall be by ballot, but no candidate, who does not secure the votes of *two-thirds* of the Members of the Council present in favour of his nomination, shall be elected.

4. The names of the candidates so selected shall be circulated to every Fellow resident in India on a voting paper to be returned by a date prescribed. The Fellow shall vote placing a cross against the names of those he wishes to be elected.

5. The voting paper shall not be signed but enclosed in a sealed envelope, which shall be forwarded to one of the Secre-

taries in an outer cover with a covering letter signed by the Fellow so as to reach the office of the Academy by the date prescribed. In the absence of a covering letter the voting paper shall be invalid.

6. At the first Meeting of the Council to be held after the date prescribed, the Chairman shall appoint two scrutineers. The scrutineers, after having opened the voting papers with the Secretaries, shall report to the Chairman the number of votes received by each candidate. The Chairman shall then announce from the Chair the names of candidates who have secured the votes of *two-thirds* of the Fellows voting and shall declare them as duly elected, and the result of the election shall be forthwith notified to all Fellows by post.

It shall be the aim of the Council to see that the nominations are distributed evenly, as far as possible, in different branches of Science.

#### (C) REGULATIONS REGARDING THE SECTIONAL COMMITTEES

1. The Council shall appoint, from among the Fellows of the Academy, Committees representing the several branches of Natural Knowledge and called 'Sectional Committees'. The members of each Committee shall be chosen with a view to secure, so far as is possible, a representation of the several subdivisions of each branch of Natural Knowledge, and to obtain the assistance of Fellows who are specially qualified to advise the Council regarding particular parts of Natural Knowledge.

2. Each Sectional Committee shall advise the Council or any of the Officers upon matters referred to it by the Council or by any of the Officers, and otherwise shall make to the Council such suggestions as it may think desirable touching the branch or branches of knowledge which it represents such as (a) in connection with communications received from Government on scientific matters of high policy, (b) subjects to be discussed at

the Annual Meeting so that the Academy can play its part in national development and planning, (c) drawing up lists of persons suitable for scrutinizing papers submitted for publication indicating the branches which they are competent to deal with, (d) advising on the books and journals which should be added to the Academy's library, (e) suggesting original research problems of both fundamental and applied nature which the Academy should initiate in the national interest; it being understood that no Sectional Committee shall offer advice to the Council as to the selection of candidates for admission into the Academy as Fellows or Foreign Fellows unless the Council shall have asked for such advice.

3. The Council shall each year appoint a member of each Committee to serve as Secretary and Convener of the Committee and to be the channel of communication between the Committee and the Council or Officers. There shall be no permanent Chairman, but a Chairman shall be elected at each Meeting. The Secretary shall be eligible to be elected Chairman.

4. *Sectional Committees*: The Sectional Committees shall be ten in number and referred to by number and not by name. The allocation of subjects, to Committee which is only indicative but not exhaustive, shall be as follows :

#### SECTIONAL COMMITTEE 1

Pure mathematics, theoretical and applied mechanics, mathematical astronomy, statistics (theory), theoretical fluid mechanics, mathematics applied to physical, biological and social theories, operational research, computer science (theory) and systems analysis.

#### SECTIONAL COMMITTEE 2

Atomic and molecular physics, solid state physics, low temperature physics, magnetism, x-ray optical and microwave spectroscopy, x-ray optical and radio-astronomy and astrophysics, acoustics, crystal physics, ionospheric and space physics, quan-

tum mechanics and field theory, particle and high energy physics, plasma physics, statistical and manybody physics, nuclear physics applied physics (excluding engineering aspects).

### SECTIONAL COMMITTEE 3

Theoretical chemistry, inorganic chemistry organic chemistry, analytical chemistry, physical chemistry, applied chemistry, nuclear chemistry.

### SECTIONAL COMMITTEE 4

Engineering, metallurgy, electrotechnics and electronics, experimental fluid mechanics, technology.

### SECTIONAL COMMITTEE 5

Meteorology, hydrology, oceanography (excluding marine biology), geology, geodesy, geophysics, geochemistry, mineralogy, physical geography.

### SECTIONAL COMMITTEE 6

Plant morphology and anatomy, plant taxonomy, experimental embryology, plant physiology, mycology, plant ecology, palaeobotany, plant cytogenetics, plant genetics including genetics of micro-organisms.

### SECTIONAL COMMITTEE 7

Vertebrate and invertebrate zoology and palaeozoology, human and comparative anatomy, embryology, taxonomy and systematics, entomology, parasitology, protozoology, marine and freshwater zoology, animal ecology and animal behaviour, anthropology, animal physiology, animal and human genetics, cytogenetics.

### SECTIONAL COMMITTEE 8

Medical sciences, microbiology, epidemiology, immunology, pathology, medical statistics and demography, pharmacology, psychiatry, endocrinology, biology of reproduction, human physiology and nutrition.

### SECTIONAL COMMITTEE 9

Biochemistry, molecular biophysics, cell biology, molecular genetics, chemical microbiology.

### SECTIONAL COMMITTEE 10

*Agriculture* : agronomy, soil science, agricultural engineering, microbiology, agricultural climatology, agricultural physics, genetics, cytogenetics and plant breeding, horticulture, vegetable crops, floriculture, entomology (including economic zoology), plant pathology, nematology, agricultural chemicals, agricultural economics, agricultural extension.

*Animal Sciences* : animal breeding and genetics, animal physiology and nutrition, veterinary bacteriology, virology and physiology, dairy chemistry and microbiology, dairy technology, fisheries biology, fisheries technology, fisheries oceanography.

*Forestry : Forest Sciences*—silviculture, forest management, forest biometrics, forest ecology including typology.

*Wood Sciences*—wood mechanics, wood preservation, wood seasoning, wood engineering, pulp & paper technology.

The Council may constitute a Special Committee to consider cases of such nominees who do not specifically come under any of the above ten Sectional Committees, at the time of listing nominees in December/January under Regulation 4 of the Regulations regarding the election of Fellows.

5. Each Committee shall consist of *nine* Members, *four* Members shall constitute a *quorum*.

6. Members shall be retired by seniority, at the rate of *one-third* every year. Where necessary, retirement shall be determined by ballot.

7. The retiring Members of the Committee shall each year vacate office on the 31 December, and shall not be eligible for election for the ensuing year.

8. Should, by reason of death or otherwise, a vacancy occur at any intermediate time, the Council shall appoint a person to fill the vacancy, and the retirement of the person so nominated shall be according to the Rules that would have applied to the Member whose place he fills provided that, if at the date of retirement the said persons has not served more than one year, he shall be eligible for immediate reappointment.

9. The appointment of the Fellows to serve as new Members of the Committee shall be made by the Council in August and the Member, so appointed, shall enter office upon 1st January ensuing.

#### (D) REGULATIONS GOVERNING GRANT TO SCIENTIFIC SOCIETIES FOR PUBLICATION OF SCIENTIFIC JOURNALS

1. *General* : The Academy provides token grant to such Scientific Societies as are registered under the Societies Registration Act XXI of 1860 and are of all-India character to assist the scientific publications in India.

2. To assist in the review of applications from various societies and to obtain expert advice on them, the Council of the Indian National Science Academy will set up a Grants Committee.

3. *A quantum of grant* : The quantum of assistance will be determined on the basis of :

- (i) Contributions appearing in the Journal containing results of the original research;
- (ii) The cost of publication of journals as shown in the audited Statement of Accounts for the previous year;
- (iii) Availability of the funds sanctioned by the Government of India to INSA.

4. *Conditions governing the grant* : The Society to whom the grant is given will utilize the same for publication of its Journal during the year in which the grant has been sanctioned:

- (i) The Societies which do not close their accounts ending 31 March could utilize the grant during their corresponding financial year. In the event of their failure to do so the Society shall be liable to refund the grant in such manner as may be required by the INSA;
- (ii) The Society shall send a utilization certificate of the grant along with the audited Statement of Account within six months of the close of its financial year;
- (iii) The Society shall send three copies of each of its publications to the INSA free of cost.

No grant will be sanctioned for expenditure of 'Capital' nature.

#### **(E) REGULATIONS REGARDING THE PREPARATION OF PAPERS FOR PUBLICATIONS**

Authors offering papers for publication in the *Proceedings* of the Academy are requested to conform to the following recommendations :

##### **PROCEEDINGS, PART 'A' (*Bimonthly*)**

The *Proceedings, Part 'A'* of the Indian National Science Academy is an inter-disciplinary journal in Physical Sciences devoted to publication of papers embodying results of original research in any branch of physical sciences (except Mathematics).

Papers submitted for publication should be as brief as adequate presentation allows.

##### **PROCEEDINGS, PART 'B' (*Bimonthly*)**

The *Proceedings, Part 'B'* of the Indian National Science Academy is an inter-disciplinary journal in Life Sciences devoted to publication of papers embodying results of original research in any branch of life sciences. The major emphasis of the journal will be on publication of studies especially those

with inter-disciplinary implications relating to Physiology, Cell Biology, Cytogenetics, Genetics, Ecology, Biochemistry Microbiology, Pathology, Endocrinology, Physiology of Reproduction, etc. relating to plants and animals.

Papers concerned with descriptive anatomy will be published only if they involve principles of Zoogeography and Evolution.

*Note :* Papers presented at the Academy's symposia, special Academy lectures relating to research and concepts fundamental to Physical Sciences and Life Sciences will also be published in the *Proceedings, Part 'A' and Part 'B' respectively.*

## INDIAN JOURNAL OF PURE AND APPLIED MATHEMATICS (*Monthly*)

The Journal is devoted primarily to original research in Pure and Applied Mathematics.

### GENERAL

Papers will be considered for publication on the clear understanding that they have not been, nor will be, submitted to another journal for publication.

### TEXT

Manuscripts should be concise, and consistent in style and spelling (spelling should be according to the Oxford or Camber's Dictionary). Standard abbreviations should be used.

### PRESENTATION

Manuscripts are to be submitted in duplicate, each copy to include all figures and tables. Manuscripts should be type-written (double-spaced) on one side of durable, white, bond paper with a margin of 2.5 cm on each side. All pages of the manuscript should be numbered consecutively. A separate page containing the title of the article, running title, name (s), of author (s), complete mailing address\*, number of tables,

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\*Any change in the address of the author (s) should be promptly communicated to the Academy for future correspondence.

figures and address to which galley proofs should be sent, should be provided. The usual format of a manuscript is, Abstract, Introduction, Materials and Methods, Results, Discussion and References.

### ABSTRACT

Each paper must be accompanied by an abstract in triplicate not exceeding 250 words summarizing the principal findings.

### TITLE

Title should be brief, specific and informative of the subject of discussion in the paper.

### RUNNING TITLE

Provide a running title of not more than 40 characters including spaces.

### TABLES

Tables should be typewritten (double-spaced) on separate pages, numbered consecutively in Roman numerals and collected at the end of the manuscript. Each table should have a descriptive heading typed above it.

### FIGURES

Line drawings should be made with India ink on tracing paper or on a white, smooth drawing board/paper. Photographs should be glossy prints with strong contrast. All photographs, charts and diagrams are to be referred to as 'Fig' or 'Figs' and must be numbered consecutively in Arabic numerals in the order in which they are referred to in the text. Photographs may be grouped together as plates using photographic adhesive or dry mounting tissue. The maximum size for a plate for reproduction is 20 cm × 14 cm. Magnification should be indicated by scale or figures (× ...) in the legend. Each figure should have a descriptive legend. Legends should

be typed on a separate page for each figure or figures in a plate.

### MATHEMATICAL MATTER

All mathematical expressions should be written clearly indicating the distinction between capital and small letters. Clear distinction between upper and lower cases of c, p, k, z, s should be made while writing the expression in hand. Also distinguish between the letters such as 'Oh' and 'zero'; l (el) and l (one); v, V and ν (Greek nu); r and γ (gamma); x, X and Greek letter chi (χ), k, K and Greek letter kappa (κ); Greek letter lambda (Λ) and symbol for vector product ( $\Lambda$ ); Greek letter epsilon (ε) and symbol for 'is an element of' ( $\in$ ). The equation numbers are to be placed at the right-hand side of the page. The name of the Greek letter or symbol should be written in the margin the first time it is used. Superscripts/subscripts should be simple and should be placed accurately.

### REFERENCES

References to the literature may be cited in the text, e. g. as Raman (1955) or (Raman, 1955) etc. Suffixes, a, b should be used following the year to distinguish two or more papers by the same author (s) published in the same year, e.g. (Raman, 1955 a, b). References to literature are to be arranged alphabetically and placed at the end of the article. For names of periodicals, the standard abbreviations listed in the World List of Scientific Periodicals should be used. A sample citation is given as follows : Margabandhu, V. (1934). An annotated list of Indo-Ceylonese Termites. *J. Bombay nat. Hist. Soc.*, 37, 700-714.

Place the Acknowledgements, if any, at the end of the paper just before References.

### GALLEY PROOFS

Galley proofs will be sent to the authors and should be returned to the Editor *within 72 hours*. Major corrections or alterations will be accepted only at the author's expense. If

proofs are not returned within the specified time, they will be read by the Editorial Office.

### REPRINTS

*Fifty reprints will be supplied free of charge to the senior author; co-authors will receive twenty-five copies each. Additional copies may be ordered on the order-form accompanying the galley proofs.*

All correspondence pertaining to the *Proceedings* and the *Indian Journal of Pure and Applied Mathematics* may be addressed to the Editor of Publications, Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi 110 002.

## (F) REGULATIONS REGARDING ACADEMY MEDALS

### (A) General Medals

- (i) THE CHANDRASEKHARA VENKATA RAMAN MEDAL
- (ii) THE MEGHNAD SAHA MEDAL
- (iii) ARYABHATA MEDAL

1. The medals to be awarded every three years are :

- (i) *The Chandrasekhara Venkata Raman Medal*
- (ii) *The Meghnad Saha Medal*
- (iii) *Aryabhata Medal*

2. The medals shall be awarded by rotation for outstanding contributions in any branch of science coming within the purview of the Academy.

The candidate proposed for the award should play no role in appointment and/or subsequent deliberations of the Committee which would make selection for the award.

3. The President, INSA, shall suggest, for consideration by the Council, names at a meeting of the Council to be held in January of the year of the award and the names selected by

the Council shall be announced at the Anniversary General Meeting of the Academy.

4. The person to whom the award is made may be requested to deliver a public lecture on the subject of his work at the Annual General Meeting of the Academy of the year to which the award relates or at one of the General Meetings of the Academy convenient to him. He may also submit three typed copies of the lecture which may be published in the *Proceedings* of the Academy and over which the Academy shall have a copyright.

5. The presentation of the medal will be made to the recipient at the Annual General Meeting of the year of the award or at the General Meeting at which he delivers his lecture.

6. The award will consist of a bronze medal of the specifications given below :

- |                |   |  |
|----------------|---|--|
| (i) Size       | : | 2½" in diameter  |
| (ii) Weight    | : | About 114 grams  |
| (iii) Design   | : | <div style="display: flex; align-items: center;"> <span style="margin-right: 10px;"><i>Obverse</i></span> <div style="display: flex; align-items: center; gap: 10px;"> <span style="border-left: 1px solid black; padding-left: 10px;"></span> <div style="display: flex; flex-direction: column;"> <span>Name of the Medal (in Devanagari characters)</span> <span>Name of the Recipient (in Devanagari characters)</span> <span>Year (in International numerals)</span> </div> </div> </div> |
| <i>Reverse</i> | : | Seal of the Academy  |

#### (B) Subject-wise Medals

- (i) THE SRINIVASA RAMANUJAN MEDAL
- (ii) THE SATYENDRANATH BOSE MEDAL
- (iii) THE HOMI J. BHABHA MEDAL
- (iv) THE JAGADISH CHANDRA BOSE MEDAL
- (v) THE SUNDER LAL HORA MEDAL
- (vi) THE D. N. WADIA MEDAL
- (vii) THE P. C. MAHALANOBIS MEDAL
- (viii) THE SHANTI SWARUP BHATNAGAR MEDAL
- (ix) THE S. H. ZAHEER MEDAL
- (x) THE SILVER JUBILEE COMMEMORATION MEDAL

*1. Notice of award of Medals:* Soon after the Anniversary General Meeting of the Academy a circular shall be issued by the Executive Secretary to all fellows of the Academy inviting them to suggest by the 15 May, two years preceding the year of award, names which may be deemed worthy of consideration for the award of each of the medals specifying the particular works which form the grounds for their recommendations.

The candidate proposed for the award should play no role in appointment and/or subsequent deliberations of the Committee which would make selection for the award.

*2. Names of candidates to be listed in August:* Before the Statutory Meeting of the Council to be held in August, a list of all candidates proposed by the 15 May shall be arranged in alphabetical order along with their respective work and attainment.

*3. The medals to be awarded every three years are :*

(a) Physical Sciences (Physics, chemistry & mathematics)

(i) *The Srinivasa Ramanujan Medal*

(ii) *The Satyendra Nath Bose Medal*

(iii) *The Homi J. Bhabha Medal*

(b) Life Sciences (Botany, zoology, anthropology, medical and veterinary sciences, physiology & biochemistry)

(i) *The Jagadish Chandra Bose Medal*

(ii) *The Sunder Lal Hora Medal*

(c) Earth Sciences (Geology, geophysics, geography, geochemistry)

*The D. N. Wadia Medal*

(d) Engineering and Technology

(i) *The P. C. Mahalanobis Medal*

(ii) *The Shanti Swarup Bhatnagar Medal*

(iii) *The S. H. Zaheer Medal*

## (e) Agriculture and Applied Sciences

*The Silver Jubilee Commemoration Medal*

4. *Conditions governing awards:* The following conditions shall govern the awards:

- (i) The Medal shall be awarded for outstanding contributions to the discipline of science concerned. Eminence is to be judged according to the criterion that the scientific work of the candidate is such that its impact has been felt for a considerable length of time.
- (ii) The S. H. Zaheer Medal will be awarded for outstanding contributions to the application of Chemical Sciences to Technology and industry.
- (iii) The person to whom the award is made shall deliver a public lecture on the subject of his work at the next Anniversary General Meeting in January of the year to which the award relates or at one of the General Meetings of the Academy convenient to him. He shall also submit three typed copies of the lecture which shall be published in the *Proceedings* of the Academy and over which the Academy shall have a copyright.

5. *Appointment of the Advisory Board:* At a meeting of the Council to be held in August, the Council shall appoint an Advisory Board consisting of not more than seven members including the President, Conveners of Sectional Committees concerned and experts. Fellows whose names have been proposed for the award shall be excluded from the membership of the Board.

The Chairman of the Board shall have a casting vote.

6. *Circulation of the list to Members of the Advisory Board:* Not later than the second week of September the Secretaries shall arrange to circulate the list of names of the persons proposed to the Members of the Board with a request to select any one name for the consideration of the Board giving specific

reasons for their selection and to forward the same to the Chairman of the Board by the 15 November.

It will be open to the Board to consider new nominations from the Members of the Board for the award, provided the nominations, along with the necessary information, are received by the Board at least four weeks in advance of the meeting of the Board.

*7. Selection by the Advisory Board:* The Chairman of the Board shall, on receipt of the views of the Members, submit the recommendations of the Board in the form of a written report to the Council signed by all the Members by 15 December, if necessary by discussion at one or more meetings of the Board to be convened by him for the purpose. The recommendation by the Advisory Board shall not be valid unless *two-thirds* of the Members of the Board shall have voted for the candidate selected. It shall be open to the Board to report to the Council that no award shall be made for the particular year, shall the Board consider that no suitable name can be proposed in which case the award for the year shall lapse.

*8. Selected name to be communicated to the Council:* At the meeting of the Council to be held in January, the report received from the Chairman of the Advisory Board shall be considered and decision taken regarding the award of the following year.

*9. Announcement of the award:* The name of the recipient shall be announced at the Annual General Meeting in October after the recipient accepts the award and indicates the subject of his proposed lecture.

*10. Presentation of the award:* The presentation of the Medal will be made to the recipient at the Anniversary General Meeting of the year of the award or at the General Meeting at which he delivers his lecture.

*11. Specifications of the awards:* The awards will consist of a bronze medal of the specifications given below :

(i) Size	:	2½ " in diameter
(ii) Weight	:	About 114 grams
(iii) Design	:	
<i>Obverse</i>	{	Name of the Medal (in Devanagari characters)
		Name of the Recipient (in Devanagari characters)
		Year (in International numerals)
<i>Reverse</i>	:	Seal of the Academy

### (C) Endowed Medals

#### (i) CHANDRAKALA HORA MEMORIAL MEDAL

(FOUNDED IN THE YEAR 1945 FROM AN ENDOWMENT OF RS. 3,000 BY DR S. L. HORA AND MRS V. HORA IN MEMORY OF THEIR DAUGHTER)

1. *Notice of award of Medal:* Soon after the Anniversary General Meeting of the Academy a circular shall be issued by the Executive Secretary to all Fellows of the Academy inviting them to suggest by the 15 May, two years preceding the year of award, names which may be deemed worthy of consideration for the award of CHANDRAKALA HORA MEMORIAL MEDAL specifying the particular works which form the grounds for their recommendations.

The candidate proposed for the award should play no role in appointment and/or subsequent deliberations of the Committee which would make selection for the award.

2. *Names of candidates to be listed in August:* Before the Statutory Meeting of the Council to be held in August, a list of all candidates proposed by the 15 May shall be arranged in alphabetical order along with their respective work and attainment.

3. The following conditions shall govern the award:

(i) *Conditions governing the award:* The Chandrakala Hora Memorial Medal shall be awarded every fifth year to an eminent scientist for conspicuously

important contributions to the development of fisheries in India during the five years preceding the year of award.

'Development' shall include all aspects of biological, technological and sociological studies, including the improvement of fishing nets and crafts and the betterment of the social and economic conditions of the fishermen. In fact, its scope shall include any discovery or invention or new practical method which will tend to increase fishery production in India on a paying basis.

- (ii) The person to whom the award is made shall deliver a public lecture on the subject of his work at the next Anniversary General Meeting in January of the year to which the award relates or at one of the General Meetings of the Academy convenient to him. He shall also submit three typed copies of the lecture which shall be published in the *Proceedings* of the Academy and over which the Academy shall have a copyright.

*4. Appointment of the Advisory Board :* At a meeting of the Council to be held in August, the Council shall appoint an Advisory Board consisting of not more than seven members including the President, Convener of the Sectional Committee concerned and experts. Fellows whose names have been proposed for the award shall be excluded from the membership of the Board.

The Chairman of the Board shall have a casting vote.

*5. Circulation of the list to Members of the Advisory Board :* Not later than the second week of September the Executive Secretary shall arrange to circulate the list of names of the persons proposed to the Members of the Board with a request to select any one name for the consideration of the Board giving specific reasons for their selection and to forward the same to the Chairman of the Board by the 15 of November.

6. *Selection by the Advisory Board*: The Chairman of the Board shall, on receipt of the views of the Members, submit the recommendation of the Board in the form of a written report to the Council signed by all the Members by 15 December, if necessary by discussion at one or more meetings of the Board to be convened by him for the purpose. The recommendation by the Advisory Board shall not be valid unless *two-third* of the Members of the Board shall have voted for the candidate selected. It shall be open to the Board to report to the Council that no award shall be made for the particular year, shall the Board consider that no suitable name can be proposed in which case the award for the year shall lapse. In such a case, however, an Advisory Board shall be constituted after a lapse of two years and in the manner prescribed in Regulation 4, till a recommendation is made for an award. The period of five years mentioned in Regulation 3 (i), shall always be counted from the year of award.

7. *Selected name to be communicated to the Council*: After the meeting of the Council to be held in January, the report received from the Chairman of the Advisory Board shall be considered and decision taken regarding the award of the following year.

8. *Announcement of the Award* : The name of the recipient shall be announced at the Annual General Meeting in October after the recipients accepts the award and indicates the subject of his proposed lecture.

9. *Presentation of the Medal* : The presentation of the medal will be made to the recipient at the Anniversary General Meeting of the year of the award or at the General Meeting at which he delivers his lecture.

10. *Specifications of the award* : The award will consist of a bronze medal of the specifications given below:

- (i) Size : 2½" in diameter
- (ii) Weight : About 114 grams

(iii) Design :	
Obverse	{ Name of the Medal (in Sanskrit, Devanagari characters) along with the figure of Matsyavatara
on the Rim	{ Name of the Recipient (in Devanagari characters) Year (in International numerals)
Reverse	: Seal of the Academy

### (ii) SHREE DHANWANTARI PRIZE

(FOUNDED IN THE YEAR 1969 FROM AN ENDOWMENT OF RS. 16,000  
BY SHRI A. K. ASUNDI IN THE MEMORY OF HIS YOUNGEST  
DAUGHTER SHRIMATI AKKADEVI)

1. *Notice of the award of prize* : The prize shall be awarded every five years, the first award being made in 1971. Soon after the Anniversary General Meeting in January, two years preceding the year of award, the executive Secretary shall issue a circular letter to all Fellows of the academy inviting them to suggest by 15 May, names of scientists (not restricted to Fellows of the Academy) for the award (In the case of the first award, however, the circular will be issued soon after the finalization of the draft regulations). All such proposals shall contain definite statements of the outstanding concrete contribution or contributions made by the candidates to medical sciences, and be accompanied by the relevant published work containing the discovery or contribution on the basis of which the candidate is proposed for the award. They shall also submit all available reprints of other published contributions of the candidates proposed.

The candidate proposed for the award should play no role in appointment and/or subsequent deliberations of the Committee which would make selection for the award.

2. *Conditions governing the prize* : The prize shall be awarded to eminent scientists for outstanding work in India in any branch of medical science in its widest sense, including

research in drugs and methodology of Ayurveda. This shall include research in medical as well as chemical, physical and biological sciences aimed at the amelioration of human suffering. In fact, its scope shall include any outstanding discovery in drug or modes of treatment or inventions established as a landmark in medical sciences in its widest sense, as detailed above.

3. *Names of candidates to be listed in August* : Before the Statutory Meeting of the Council to be held in August a list of all nominations received by the 15 May shall be arranged in alphabetical order along with their respective work of attainments.

4. *Appointment of Advisory Board* : At a meeting of the Council to be held in August, the Council shall appoint an Advisory Board consisting of not more than seven members including the President, Conveners of the Sectional Committees concerned and experts. Scientists who are proposed for the award shall not be members of the Advisory Board. The Chairman of the Board shall be named by the Council and shall have a casting vote.

5. *Circulation of the list to Members of the Advisory Board* : Not later than the 2nd week of September, the Executive Secretary shall arrange to circulate the list of names of the persons proposed for the award to the members of the Board with a request to select any one or more names for the consideration of the Board and to forward the same by 15 November, giving in sufficient detail the specific outstanding discovery or contributions on the basis of which the recommendation is made to the Chairman of the Board by 15 November.

It will be open to the Board to consider new nominations from the members of the Board for the award provided the nominations along with the necessary information are received by the Board at least four weeks in advance of the meeting of the Board.

*6.1. Selection by the Advisory Board :* The Chairman of the Board shall, on receipt of the members submit the recommendations of the Board in the form of a written report signed by all the members to the Council by 15 December, if necessary by discussion at one or more meetings of the Board to be convened by him for the purpose. The recommendations made by the Advisory Board shall not be valid unless *two-third* of the members of the Board shall have voted for the candidates selected. It shall be open to the Board to report to the Council that no award shall be made for the particular year, should the Board consider that no suitable name can be proposed in which case the award for the year shall lapse. In such a case, however, the Council of INSA shall constitute an Advisory Board after a lapse of two years and in the manner prescribed in Para 4, till a recommendation is made for the award. The period of five years mentioned in Regulation 1, shall always be counted from the year of the award.

*6.2.* It shall be open to the Board to recommend more than one scientist for the award. In such a case the prize money will be equally distributed among the scientists declared as recipients of the award but each will be given a separate medal.

*7. Selected name to be communicated to the Council :* At the meeting of the Council to be held in January, the report received from the Chairman of the Advisory Board shall be considered and decision taken regarding the award of the following year.

*8. Announcement of the award :* The name(s) of the recipient(s) shall be announced at the Annual General Meeting in October after receiving intimation of acceptance, indicating the subject(s) of the proposed lecture(s).

*9. Value of the prize:* The award will consist of a prize of Rs. 5,000 and of a bronze medal of the specifications given below:

- (i) Size :  $2\frac{1}{2}$ " in diameter
- (ii) Weight : About 114 grams

## (iii) Design :

*Obverse* { Name of the Medal (in Devanagari characters)  
 Figure of Shree Dhanwantari embossed  
 Name of the Recipient (in Devanagari characters)  
 Year (in International numerals)

*Reverse* : Seal of the Academy

10. The presentation of the prize and the medal will be made to each recipient at the Anniversary General Meeting of the year of the award or at the General Meeting at which he delivers his lecture. Each recipient shall submit three typed copies of the lecture, at least three months in advance, which shall be published by the Indian National Science Academy and over which the Academy shall have a copyright.

**(iii) PROFESSOR T. R. SESHADRI SEVENTIETH BIRTHDAY  
COMMEMORATION MEDAL**

(FOUNDED IN THE YEAR 1971 FROM AN ENDOWMENT OF RS. 10,000  
BY THE STUDENTS OF PROF T. R. SESHADRI)

1. *Notice of the award of Medal* : The Medal shall be awarded every three years, the first award having been made in 1973. Soon after the Anniversary General Meeting in January, two years preceding the year of award, the Executive Secretary shall issue a circular letter to all Fellows of the Academy inviting them to suggest by 15 May (names of scientists not restricted to Fellows the Academy) for the award. All such proposals shall contain definite statements of the outstanding concrete contribution or contributions made by the candidates to any branch of chemistry or chemical technology and be accompanied by the relevant published work containing the discovery or contribution, on the basis of which the candidate is proposed for the award. They shall also submit all available reprints of other published contributions of the candidates proposed.

The candidate proposed for the award should play no role in appointment and or subsequent deliberations of the Committee which would make selection for the award.

2. *Conditions governing the award of Medal:* The Medal shall be awarded to an eminent chemist of Indian nationality for outstanding work in any branch of chemistry or chemical technology.

3. *Names of condidates to be listed in August :* Before the Statutory Meeting of the Council to be held in August a list of all nominations received by 15 May shall be arranged in alphabetical order along with their respective work of attainments.

4. *Appointment of Advisory Board :* At a meeting of the council to be held in August, the Council shall appoint an Advisory Board consisting of not more than seven members including the President, Conveners of the Sectional Committees concerned and experts. Scientists who are proposed for the award shall not be members of the Advisory Board. The Chairman of the Board shall have a casting vote.

5. *Circulation of the list to Members of the Advisory Board :* Not later than the 2nd week of September, the Executive Secretary shall arrange to circulate the list of names of the persons, proposed for the award to the members of the Board with a request to select any one name for the consideration of the Board and to forward the same by 15 November giving in sufficient detail the specific outstanding discovery or contributions on the basis of which the recommendation is made to the Chairman of the Board.

It Will be open to the Board to consider new nominations from the members of the Board for the award provided the nominations along with the necessary information are received by the Board at least four weeks in advance of the meeting of the Board.

6. *Selection by the Advisory Board :* The Chairman of the Board shall, on receipt of the view of the members submit the recommendations of the Board in the form of a written report to the Council signed by all the members by 15 December, if necessary by discussion at one or more meetings of the Board to

be convened by him for the purpose. The recommendation made by the Advisory Board shall not be valid unless *two-thirds* of the members of the Board shall have voted for the candidate selected. It shall be open to the Board to report to the Council that no award shall be made for the particular year, should the Board consider that no suitable name can be proposed in which case the award for the year shall lapse. In such a case, however the Council of INSA shall constitute an Advisory Board at the next August meeting and in the manner prescribed in Regulation 4, till a recommendation is made for award. The period of three years mentioned in Regulation 1, shall always be counted from the year of the award.

7. *Selected name to be communicated to the Council* : At the meeting of the Council to be held in January, the report received from the Chairman of the Advisory Board shall be considered and decision taken regarding the award for the following year.

8. *Announcement of the award* : The name of the recipient Shall be announced at the Annual General Meeting in October after receiving intimation of acceptance indicating the subject of the proposed lecture.

9. *Value of the award* : The award will consist of a cash prize of Rs. 1,500 and a bronze medal of the specifications given below :

(i) Size :  $2\frac{1}{2}$ " in diameter

(ii) Weight : About 114 grams

(iii) Design :

<i>Obverse</i>	{	Name of the Medal (in Devanagari characters)
		Name of the Recipient (in Devanagari characters)
		Year (in International numerals)

*Reverse* : Seal of the Academy

10. *Presentation of the award* : The presentation of the prize and the medal will be made to the recipient at the Anniversary

General Meeting of the Academy in January at which he delivers his lecture and failing this at the succeeding Annual General Meeting in October. The recipient shall submit three typed copies of the lecture, at least three months in advance which shall be published by the INSA and over which the Academy shall have a copyright.

11. The recipient of the award shall be paid travelling and halting expenses within India for journeys performed to deliver the lecture, at the rates applicable to Council Members for attending Statutory meetings of the Council.

#### (iv) VISHWAKARMA MEDAL

(FOUNDED IN THE YEAR 1976 FROM AN ENDOWMENT  
OF RS. 33,000/- BY DR P.B. SARKAR, FNA)

1. *Notice of the Award:* The Medal shall be awarded every three years, the first award being made in 1979. Soon after the Anniversary General Meeting in January, two years preceding the year of the award, Executive Secretary shall issue a circular letter to all Fellows of the Academy inviting them to suggest by 15 May names of the Scientists (not restricted to Fellows of the Academy) for the award. (In the case of the first award, however the circular will be issued soon after the finalisation of the draft regulations). All such proposals shall contain definite statements of the outstanding concrete contribution(s) made by the Scientists, Technologists or any one whose discovery or invention has led to the start of a new industry in India or to significant improvement of an existing process resulting in cheaper or better product, and be accompanied by the relevant published work containing the discovery or invention on the basis of which the candidate is proposed for the award. They shall also submit all available reprints of other published contributions of the candidate proposed.

The candidate proposed for the award should play no role in appointment and/or subsequent deliberations of the Committee which would make selection for the award.

2. *Conditions governing the award:* The Medal shall be awarded to eminent scientists, technologists or any one whose discovery on invention has led to the start of a new industry in India or to significant improvement of an existing process resulting in cheaper or better product.

3. *Names of candidates to be listed in August:* Before the Statutory Meeting of the Council to be held in August, a list of all nominations received by the 15 May shall be arranged in alphabetical order along with their respective work of attainments.

4. *Appointment of the Advisory Board:* At a meeting of the Council to be held in August, the Council shall appoint an Advisory Board consisting of not more than seven members including the President, Conveners of the Sectional Committees concerned and experts. *Scientists who are proposed for the award shall not be members of the Advisory Board.*

The chairman of the Board shall be named by the Council and shall have a casting vote.

5. *Circulation of the list to Members of the Advisory Board:* Not later than the second week of September the Executive Secretary shall arrange to circulate the list of names of the persons proposed for the award to the members of the Board with a request to select any one or more names for the consideration of the Board and to forward the same giving in sufficient detail the specific outstanding discovery or contributions on the basis of which the recommendation is made to the Chairman of the Board by 15 November.

It will be open to the Board to consider new nominations from the members of the Board for the award provided the nominations along with the necessary information are received by the Board at least four weeks in advance of the meeting of the Board.

6.1. *Selection by the Advisory Board:* The Chairman of the Board shall, on receipt of the views of the Members, submit the recommendation of the Board in the form of a written report signed by all the members to the Council by 15th December if

necessary by discussion at one or more meetings of the Board to be convened by him for the purpose. The recommendations made by the Advisory Board shall not be valid unless two-third of the members of the Board shall have voted for the candidates selected. It shall be open to the Board to report to the Council that no award shall be made for the particular year, should the Board consider that no suitable name can be proposed in which case the award for the year shall lapse. In such a case, however, the Council of INSA shall constitute an Advisory Board after a lapse of two years and in the manner prescribed in Para 4, till a recommendation is made for the award. The period of three years mentioned in Regulation 1, shall always be counted from the year of the award.

6.2. It shall be open to the Board to recommend more than one scientist for the award. In such a case the prize money will be equally distributed among the scientists declared as recipients of the award but each will be given a separate Medal.

7. *Selected name to be communicated to the Council:* At the meeting of the Council to be held in January, the report received from the Chairman of the Advisory Board shall be considered and decision taken regarding the award of the following year.

8. *Announcement of the Medal :* The name(s) of the recipient(s) shall be announced at the Annual General Meeting in October after receiving intimation of acceptance indicating the subject(s) of the proposed lecture(s).

9. *Value of the Award :* The award will consist of a prize of Rs. 7,500 and a bronze medal of the specification given below:

(i) Size : . . . . .	2½" in diameter
(ii) Weight : . . . . .	about 114 grams
(iii) Design : . . . . .	{ Name of the Medal (in Devanagari characters)
Obverse . . . . .	{ Name of the Recipient (in Devanagari characters)
Reverse . . . . .	{ Year (in International numerals) Seal of the Academy

10. The presentation of the prize and the medal will be made to each recipient at the Anniversary General Meeting of the year of the award or at the General Meeting at which he delivers his lecture. Each recipients shall submit three typed copies of the lecture at least three months in advance, which shall be published by the INSA and over which the Academy shall have a copyright.

#### (G) REGULATIONS REGARDING ACADEMY LECTURES

- (i) THE SISIR KUMAR MITRA MEMORIAL LECTURE
- (ii) THE KARIAMANIKKAM SRINIVASA KRISHNAN MEMORIAL LECTURE

1. *Suggestions for Lectureship* : Soon after the Anniversary General Meeting of the Academy in January the Executive Secretary shall issue a circular letter to all Fellows of the Academy inviting them to suggest by 15 May, two years preceding the year of the appointment to the Lecture, the names of suitable persons whom they would deem worthy of consideration for appointment to the Lecture specifying the particulars of attainments which form the ground for their recommendations. The names so suggested should be from among the persons who have made distinct contributions to any branch of natural science coming within the purview of the Academy.

The candidate proposed for the award should play no role in appointment and/or subsequent deliberations of the Committee which would make selection for the award.

2. *Names of candidates to be listed in August* : Before the Statutory Meeting of the Council to be held in August a list of all nominations received by 15 May shall be arranged subject-wise along with the respective work and attainment of the nominees.

3. *Academy's Lectures* : The appointments to be made every three years alternately are in respect of the following Lectures:

(a) *The Sisir Kumar Mitra Memorial Lecture*

(b) *The Kariamanikkam Srinivasa Krishnan Memorial Lecture*

**4. Appointment of the Advisory Board :** At a meeting of the Council to be held in August the Council shall appoint an Advisory Board consisting of not more than seven members including the President, Conveners of the Sectional Committees concerned and experts. Fellows whose names have been proposed for the Lecture shall be excluded from the membership of the Board.

The Chairman of the Board shall have a Casting Vote.

**5. Circulation of the list to Members of the Advisory Board :** Not later than the second week of September the Executive Secretary shall arrange to circulate the list of names of the persons proposed to the Members of the Board with a request to select any one name for the consideration of the Board giving specific reasons for their selection and to forward the same to the Chairman of the Board by 15 November.

It will be open to the Board to consider new nominations from the members of the Board for the award provided the nominations along with the necessary information are received by the Board at least four weeks in advance of the meeting of the Board.

**6. Selection by the Advisory Board :** The Chairman of the Board shall, on receipt of the views of the members, submit the recommendations of the Board in the form of a written statement to the Council signed by all the members by 15 December, if necessary by discussion at one or more meetings of the Board to be convened by him for the purpose. The recommendations by the Advisory Board shall not be valid unless *two-thirds* of the members of the Board shall have voted for the candidate selected. It shall be open to the Board to report to the Council that no appointment shall be made for the particular year, shall the Board consider that no suitable name can be considered in which case the appointment for the year shall lapse.

7. *Announcement of the name of Lecturer* : The appointment shall be announced at the General Meeting to be held in October preceding the year of appointment after the selected Lecturer accepts the appointment for the succeeding year, and indicates the subject of his proposed lecture.

8. *Value of Lecture* : The Lecturer shall be paid a remuneration of Rs. 1,000. Besides, he shall be paid travelling and halting expenses within India for journeys performed to deliver the lecture, at the rates applicable to the members of the Council for attending meetings.

9. *Delivery of Lecture and its publication* : The Lecturer shall deliver at his discretion one or two lectures on the subject selected, normally during the Annual General Meeting of the Academy in October of the year of Lecture and failing this at the succeeding Anniversary General Meeting. In case the selected Lecturer for a specified year is, for any reason, unable to deliver the lecture latest by this Anniversary General Meeting, the Lectureship for that year shall lapse. The Lecturer shall submit at least three months in advance three copies of his lecture which shall be published by the Indian National Science Academy and over which the Academy shall have a copyright.

### Endowed Lectures

**(i) THE BIRES CHANDRA GUHA MEMORIAL LECTURE**  
 [FOUNDED IN THE YEAR 1965 FROM AN ENDOWMENT OF RS. 10,000  
 BY DR (MRS) PHULRENU GUHA IN THE MEMORY OF HER HUSBAND  
 PROFESSOR BIRES CHANDRA GUHA]

10. *Suggestions for Lecture* : Soon after the Anniversary General Meeting of the Academy in January 1967 and thereafter in January every third year, the Executive Secretary shall issue a circular letter to all Fellows of the Academy, inviting them to suggest by 15 May, two years preceding the year of the appointment of the Lecturer, names of suitable persons whom they would deem worthy of consideration for appointment to

the Lecture specifying the particulars of attainments which form the ground for their recommendations. The name so suggested should be from amongst the persons who have made distinct contributions in the field of biochemistry, nutrition, food and allied problems in the broadest sense

The candidate proposed for the award should play no role in appointment and/or subsequent deliberations of the Committee which would make selection for the award.

2. *Names of candidates to be listed in August* : Before the Statutory Meeting of the Council to be held in August a list of all nominations received by 15 May shall be arranged subject-wise along with the respective work and attainment of the nominees.

3. *Appointment of the Advisory Board* : At a meeting of the Council to be held in August the Council shall appoint an Advisory Board consisting of not more than seven members including the President, Conveners of the Sectional Committees concerned and experts. Fellows whose names have been proposed for the award shall be excluded from the membership of the Board.

The Chairman of the Board shall have a casting vote.

4. *Circulation of the list to Members of the Advisory Board* : Not later than the second week of September the Executive Secretary shall arrange to circulate the list of names of the persons proposed to the members of the Board with a request to select any one name for the consideration of the Board giving specific reasons for their selection and to forward the same to the Chairman of the Board by 15 November.

It will be open to the Board to consider new nominations from the members of the Board for the award provided the nominations along with the necessary information are received by the Board at least four weeks in advance of the meeting of the Board.

5. *Selection by the Advisory Board*: The Chairman of the Board shall, on receipt of the views of the members, submit the recommendations of the Board in the form of a written statement signed by all the members to the Council by 15 December, if necessary by discussion at one or more meetings of the Advisory Board to be convened by him for the purpose.

The recommendations should contain two names, in order of preference, to enable the offer to be made to the second choice should the first one decline the offer. The recommendations by the Advisory Board shall not be valid unless *two-thirds* of the members of the Board shall have voted for the candidate selected. It shall be open to the Board to report to the Council that no appointment shall be made for the particular year, should the Board consider that no suitable name can be considered in which case the appointment for the year shall lapse.

6. *Announcement of the name of Lecturer*: The appointment shall be announced at the General Meeting to be held in October preceding the year of appointment after the selected Lecturer accepts the appointment for the succeeding year, and indicates the subject of his proposed lecture.

7. *Value of Lecture* : The Lecturer shall be paid a remuneration of Rs. 1,000—1,500, depending on the income. Besides, he shall be paid travelling and halting expenses within India for journey performed to deliver the lecture, at the rate applicable to the members of the Council for attending meetings.

8. *Delivery of lecture and its publication* : The Lecturer shall deliver at his discretion one or two lectures on the subject selected, normally during the Annual General Meeting of the Academy in October of the year of Lecture and failing this at the succeeding Anniversary General Meeting. The Lecturer shall submit at least three months in advance three copies of his lecture which shall be published by the Indian National Science Academy and over which the Academy shall have a copyright.

## (ii) THE BASHAMBAR NATH CHOPRA LECTURE

(FOUNDED IN THE YEAR 1968 FROM AN ENDOWMENT OF RS 10,000 IN THE MEMORY OF DR B. N. CHOPRA BY HIS FAMILY MRS IQBAL CHOPRA, SHRI PRAN NATH CHOPRA, SHRI RAMESH NATH CHOPRA AND MRS MOHINI DUGGAL)

1. *Suggestions for Lecture* : Soon after the Anniversary General Meeting of the Council in January 1969, and thereafter in January every third year\* the Executive Secretary shall issue a circular letter to all members of the Council inviting them to suggest by 15 May, two years preceding the year of the appointment of the Lecturer, names of the suitable persons whom they would deem worthy of consideration for appointment to the Lecture specifying the particulars of attainments which form the ground for their recommendations. The names so suggested should be from amongst the persons who have made distinct contribution to any branch of biological sciences coming within the purview of the Academy.

The candidate proposed for the award should play no role in appointment and/or subsequent deliberations of the Committee which would make selection for the award.

2. *Names of the candidates to be listed in August* : Before the Statutory Meeting of the Council to be held in August a list of all nominations received by the 15 May shall be arranged subject-wise along with the respective work and attainment of the nominees.

3. *Appointment of the Advisory Board* : At a meeting of the Council to be held in August the Council shall appoint an Advisory Board consisting of not more than seven members including the President, Conveners of Sectional Committees concerned and experts. Fellows whose names have been proposed for the award, shall be excluded from the membership of the Board.

The Chairman of the Board shall have a casting vote.

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\*The Council at its discretion may, however, award the Lecture every two years if the income permits.

*4 Circulation of the list to Members of the Advisory Board:* Not later than the second week of September the Executive Secretary shall arrange to circulate the list of names of the persons proposed to the members of the Board with a request to select any one name for the consideration of the Board giving specific reasons for their selection and forward the same to the Chairman of the Board by the 15 November.

It will be open to the Board to consider new nominations from the members of the Board for the award provided the nominations along with the necessary information are received by the Board at least four weeks in advance of the meeting of the Board.

*5. Selection by the Advisory Board:* The Chairman of the Board shall, on receipt of the views of the members, submit the recommendations of the Board in the form of a written statement to the Council signed by all the members by 15 December, if necessary by discussion at one or more meetings of the Advisory Board to be convened by him for the purpose.

The recommendations should contain two names, in order of preference, to enable the offer to be made to the second choice should the first one decline the offer. The recommendations by the Advisory Board shall not be valid unless *two-thirds* of the members of the Board shall have voted for the candidate selected. It shall be open to the Board to report to the Council that no appointment shall be made for the particular year, should the Board consider that no suitable name can be considered in which case the appointment for the year shall lapse.

*6. Announcement of the name of Lecturer:* The appointment shall be announced at the General Meeting to be held in October preceding the year of appointment after the selected lecturer accepts the appointment for the succeeding year, and indicates the subject of his proposed lecture.

*7. Value of Lecture:* The Lecturer shall be paid a remuneration of Rs. 1,000-1,500, depending on the income. Besides,

he shall be paid travelling and halting expenses within India for journeys performed to deliver the lecture, at the rate applicable to members of the Council for attending Meetings.

*8. Delivery of lecture and its publication :* The Lecturer shall deliver at his discretion one or two lectures on the subject selected, normally during the Annual General Meeting of the Academy in October of the year of Lecture and failing this at the succeeding Anniversary General Meeting. The Lecturer shall submit at least three months in advance three copies of his lecture which shall be published by the Indian National Science Academy and over which the Academy shall have a copyright.

#### (H) REGULATIONS REGARDING SCIENCE ACADEMY MEDALS FOR YOUNG SCIENTISTS

*1. Name of the award :* The award shall be called 'Science Academy Medals for Young Scientists'.

*2. Purpose and eligibility :* The awards shall be made in recognition of distinct contributions to any branch of science or technology coming within the purview of the Academy.

*3. Any citizen of India below the age of 30 years as reckoned on 31 December preceding the year of award who has done outstanding work in science or technology shall be eligible for consideration of the award.*

*4. Not more than 15 awards shall be made in a year. However, the maximum number of awards made for the first two years, i.e. 1974 and 1975, was 30 each year.*

*5. Nominations for the award :* Name of the candidate may be proposed by the Fellows of the Academy/any scientific society of all India character/university faculties/postgraduate Departments or Research Institutions. The members of Sectional Committees should not sponsor candidates for the

award of Science Academy Medals for Young Scientists. Each nomination shall be accompanied by detailed statements of the work and attainments of the nominee. Notification inviting nominations for the award shall be issued each year after the Annual General Meeting of the Academy.

The nominations with all relevant information must reach the Academy latest by the 1st December.

6. *Selectoin Committee for the award*: In awarding the medals the Council of the Academy shall be assisted by the Sectional Committees. In the case of candidates who do not come within the purview of any of the existing Sectional Committees, the Council shall take a decision assisted by such suitable Committees as it may decide or constitute.

7. *Circulation of the list to the members of the Sectional Committees*: Not later than the second week of February the Executive Secretary shall arrange to circulate the list of names of the persons proposed for the award to the members of the respective Sectional Committees with a request to communicate their assessment of the candidate to the Conveners of the respective Sectional Committees under intimation to the Executive Secretary by the 15 of March. Besides indicating the suitability, the members may also indicate grading in the event of more than one candidate is found suitable.

For the purpose of grading, the first, second and third positions would get 10, 9 and 8 points each.

Each Sectional Committee has 9 members and the Conveners may be given an additional casting vote. Each committee will, therefore, have a maximum 100 points.

The recommendations obtained from the members are then computed. A candidate securing more then 40% points (qualifying level) may be invited to the Academy during the meeting of the Sectional Committee held in April. Not more than 3 candidates may be invited by each Sectional Committee.

The selected candidates will be required to present their research work to the members of the Sectional Committee at the time of the Sectional Committee meetings and after due deliberations the committee would take a final decision about the suitability of the candidate. The candidates called for the purpose may be paid second class return rail fare.

8. *Selection by the Sectional Committees* : The Conveners of Sectional Committees, on receipt of the views of the members, shall submit to the Council, by the end of May, the recommendations of the Committees in the form of a written statement signed by the members of the Committee after discussion at a meeting of the Sectional Committee. It shall be open to the Committee to report to the Council that no award be made for the particular year should the Committee consider that no suitable name could be recommended.

9. *Selection by the Council* : At the meeting of the Council to be held in August, the reports received from the Conveners of the Sectional Committees shall be considered and decision taken regarding the awards.

10. *Announcement of the awards* : The names of the scientists selected for the awards by the Council shall be announced at the Annual General Meeting of the Academy to be held in October.

11. *Presentation of medals* : The presentation of medals to recipients will be made at the time of the Anniversary General Meeting of the Academy.

The Academy would bring out a publication containing the work of the Young Scientists selected for the award at the time of the presentation of the award.

12. *Value* : The award shall consist of a bronze medal of the specifications given below :

- (i) Size :  $2\frac{1}{2}$ " in diameter
- (ii) Weight : About 114 grams

## (iii) Design :

Obverse	{ Name of the medal (in Devanagari character) Name of the Recipient (in Devanagari characters) Year (in International numerals)
Reverse :	Seal of the Academy (in Devanagari characters)

With the medal there is a cash award of Rs. 1500. The awardees will be entitled to TA/DA (actual first class rail fare both ways subject to production of money receipt from Railways) along with incidentals of Rs. 12.50 for 24 hours journey or part thereof and daily allowance of Rs. 12 per day (Rs. 15 if the Science Congress is held at Delhi, Bombay, Calcutta or Madras). Daily allowance will be admissible for a maximum of two days for attending the presentation of awards at the inaugural session of the Indian Science Congress.

The recipient may be also be given a research grant to be utilized for the advancement of his research work out of the funds which may be made available to the Academy by non-profit organizations supporting research.

## THE ACADEMY'S MEDALS, LECTURES AND PRIZE

THE following Medals are awarded by the Academy to persons of any nationality on the recommendation of the Council or of the Advisory Boards appointed by the Council for the purpose. The members of the Advisory Boards, however, are not eligible for the award in that year.

The medals awarded by the Academy are General Medals, Subjectwise Medals and Endowed Medals.

In accordance with the regulations, the candidate proposed for the award should play no role in appointment and/or subsequent deliberations of the Committee which would make selection for the award.

In accordance with the Regulations, the recipients of the medals have to deliver lectures on the subjects of their work at the Anniversary General Meeting or at one of the General Meetings of the Academy as may be convenient to them.

The medals are as follows:

### I. General Medals

- (i) The Chandrasekhara Venkata Raman Medal
- (ii) The Meghnad Saha Medal
- (iii) Aryabhata Medal

The medals will be awarded every three years.

The medals may be awarded (irrespective of their specialisation) for outstanding contribution in any branch of science coming within the purview of the Academy.

Selection for these medals will be made by the Council on the recommendation of the President.

## II. Subject-wise Medals

### 1. *Physical Sciences*

(Physics, Chemistry & Mathematics)

- (i) The Srinivasa Ramanujan Medal
- (ii) The Satyendranath Bose Medal
- (iii) The Homi J. Bhabha Medal

### 2. *Life Sciences*

(Botany, Zoology, Anthropology, Medical and Veterinary Sciences, Physiology, Biochemistry)

- (i) The Jagdish Chandra Bose Medal
- (ii) The Sunder Lal Hora Medal

### 3. *Earth Sciences*

(Geology, Geophysics, Geography, Geochemistry)

- (i) The D. N. Wadia Medal

### 4. *Engineering and Technology*

- (i) The P. C. Mahalanobis Medal
- (ii) The Shanti Swarup Bhatnagar Medal
- (iii) The S. H. Zaheer Medal

### 5. *Agriculture and Allied Sciences*

- (i) The Silver Jubilee Commemoration Medal

The medals shall be awarded for outstanding contribution to the discipline of science concerned. Eminence is to be judged according to the criterion that the scientific work of the candidate is such that its impact has been felt for a considerable length of time.

Selection for these medals will be made on the recommendations of the Advisory Board appointed for the purpose.

The medals will be awarded every three years.

### III Endowed Medals

#### 1. THE CHANDRAKALA HORA MEMORIAL MEDAL

This Medal is awarded from the income of the funds placed at the disposal of the Academy by Dr. S. L. Hora and Mrs. V. Hora in the year 1945 in the memory of their daughter, Kumari Chandrakala Hora. The Medal is awarded every five years for conspicuously important contributions to the development of fisheries in India during the five years preceding the year of award.

#### 2. SHREE DHANWANTARI PRIZE

The Prize is awarded from the income of funds placed at the disposal of the Academy by Shri Anant Krishna Asundi, B.A., LL.B. (Bombay), retired District and Sessions Judge, Bijapur (Mysore), in the year 1969 in the memory of his youngest daughter Shrimati Akkadevi. The prize is awarded every five years for conspicuously important contributions to medical science in its widest sense as described in Para 2 of Regulations governing the award of the prize.

#### 3. PROFESSOR T. R. SESHA DRI SEVENTIETH BIRTHDAY COMMEMORATION MEDAL

The Medal is awarded from the income of the funds placed at the disposal of the Academy by the students of Professor T. R. Seshadri to commemorate his Seventieth Birthday. The award is made every three years to an eminent scientist of Indian nationality for outstanding work in any branch of chemistry or chemical technology.

#### 4. VISHWAKARMA MEDAL

The Medal shall be awarded once every three years (the first award will be made in 1979) from the income of the fund of Rs. 33,000 placed at the disposal of the Academy by Dr. P.B. Sarkar, FNA. The medal shall be awarded to eminent scientists, technologists or any one whose discovery or invention has led to the start of a new industry in India or to significant improvement of an existing process resulting in cheaper or better product.

## 5. SCIENCE ACADEMY MEDALS FOR YOUNG SCIENTISTS

The "Science Academy Medals for Young Scientists" instituted in 1974 and to be awarded annually are intended to honour talented scientists below the age of 30 years in recognition of their distinct contribution on any branch of Science and Technology coming within the purview of the Academy. The maximum number of awards in a year shall not exceed 15.

### MEDAL LISTS

#### *The Chandrakala Hora Memorial Medal*

1950	S. B. SETNA
1955	G. K. N. MITRA
	{ K. H. ALIKUNHI
1960	H. L. CHAUDHURY
1965	B. S. BHIMACHAR
1970	N. K. PANIKKAR
1975	S. Z. QASIM

#### *The Meghnad Saha Medal*

1958	S. N. BOSE
1961	H. J. BHABHA
1963	D. N. WADIA
1965	D. M. BOSE
1967	NO AWARD
1969	C. R. RAO
1971	T. R. SESHADRI
1973	NO AWARD
1975	T. R. GOVINDACHARI
1978	D. S. KOTHARI

#### *The Shanti Swarup Bhatnagar Medal*

1959	ATMA RAM
1962	NO AWARD
1964	T. R. SESHADRI
1966	D. S. KOTHARI
1968	P. RAY
1970	S. BHAGAVANTAM
1972	NO AWARD
1974	A. N. KHOSLA
1976	NO AWARD
1979	BRAHM PRAKASH

#### *The Sunder Lal Hora Medal*

1960	M. O. P. IYENGAR
1963	P. MAHESHWARI
1965	B. R. SESHACHAR
1967	M. J. THIRUMALACHAR
1969	K. RAMIAH
1971	SALIM ALI
1973	T. S. SADASIVAN
1975	L. S. RAMASWAMI
1978	G. P. TALWAR

#### *The Srinivasa Ramanujan Medal*

1962	S. CHANDRASEKHAR
1964	B. P. PAL
1966	K. CHANDRASEKHARAN
1968	P. C. MAHALANOBIS
1970	NO AWARD
1972	G. N. RAMACHANDRAN
1974	HARISH CHANDRA
1976	NO AWARD
1979	R. P. BAMBH

#### *The Silver Jubilee Commemoration Medal*

1970	S. RANGASWAMI
1973	M. S. SWAMINATHAN
1976	A. K. SHARMA
1979	M. S. RANDHAWA

<i>The Professor T. R. Seshadri Seventieth Birthday Commemoration Medal</i>	<i>D. N. Wadia Medal</i>
1973 K. VENKATARAMAN	1977 A. G. JHINGRAN
1976 R. C. MEHROTRA	<i>P. C. Mahalanobis Medal</i>
1979 S. C. BHATTACHARYYA	1978 C. AMBASANKARAN
<i>Shree Dhanwantari Prize</i>	<i>J.C. Bose Medal</i>
1971 R. VISHWANATHAN	1977 DR V. RAMALINGASWAMI
1976 B. MUKERJI	<i>Homi J. Bhabha Medal</i>
<i>The S. N. Bose Medal</i>	1978 B. V. SREEKANTAN
1977 E. C. G. SUDARSHAN	<i>Vishwakarma Medal</i>
	1979 SUKH DEV
	<i>Aryabhata Medal</i>
	K. R. RAMANATHAN

## LECTURES

*The Chandrakala Hora Memorial Lecture*

1950 S. B. SETNA	(Delivered on 2 January 1950)
GROWTH OF THE FISHING INDUSTRY : SIDELIGHTS ON FIFTEEN YEARS' WORK	<i>Proceedings Vol. 16</i>
1960 H. L. CHAUDHURI	(Delivered on 5 August 1962)
INDUCED SPAWNING OF INDIAN CARPS	<i>Proceedings Vol. 29B</i>
1965 B. S. BHIMACHAR	
ORGANIZATION OF DEVELOPMENT-ORIENTED FISHERIES RESEARCH IN INDIA	<i>Proceedings Vol. 33B</i>
1970 N. K. PANIKKAR	(Delivered on 4 August 1973)
INTEGRATED RESEARCH AND DEVELOPMENT OF INDIAN FISHERIES	
1975 S. Z. QASIM	(Delivered on 16 May 1975)
AQUACULTURE— ITS POTENTIAL AND SCOPE IN INDIA	

*The Meghnad Saha Memorial Lecture*

1958 S. N. BOSE	(Delivered on 5 August 1959)
THE ABSOLUTE COEFFICIENTS OF THE GENERALIZED THEORY OF RELATIVITY	
1963 D. N. WADIA	(Delivered on 22 October 1964)
THE HIMALAYA MOUNTAINS: THEIR AGE, ORIGIN AND SUB- CRUSTAL RELATIONS	<i>Proceedings Vol. 30A</i>

- 1965 D. M. BOSE (Delivered on 3 January 1967)  
SCIENTIFIC RESEARCH AND DEVELOPMENT IN RELATION TO  
NATIONAL PRODUCTIVITY *Proceedings Vol. 37A*
- 1969 C. R. RAO (Delivered on 3 January 1970)  
COMPUTERS : A GREAT REVOLUTION IN SCIENTIFIC RESEARCH  
*Proceedings Vol. 36A*
- 1971 T. R. SESHADRI (Delivered on 15 October, 1971)  
RECENT DEVELOPMENTS IN OUR KNOWLEDGE OF GOSSYPOL, THE  
COLOURING MATTER AND ACTIVE PRINCIPLE OF THE COTTON AND  
RELATED PLANTS
- 1975 T. R. GOVINDACHARI (Delivered on 2 January 1975)  
CHEMICAL STUDIES ON INDIAN PLANTS *Proceedings Vol. 41A*

*The Shanti Swarup Bhatnagar Memorial Lecture*

- 1959 ATMA RAM (Delivered on 6 October 1961)  
THE MAKING OF OPTICAL GLASS IN INDIA : ITS LESSON FOR  
INDUSTRIAL DEVELOPMENT *Proceedings Vol. 27A*
- 1964 T. R. SESHADRI (Delivered on 8 October, 1965)  
CHEMICAL STUDY OF NATURAL SELECTIVE INSECTICIDES:  
ROTENOIDS *Proceedings Vol. 31A*
- 1966 D. S. KOTHARI (Delivered on 6 October, 1967)  
SOME PROPERTIES OF RADIATION *Proceedings Vol. 34A*
- 1968 P. RAY (Delivered on 8 September, 1969)  
SOME ASPECTS OF MAGNETOCHEMISTRY
- 1970 S. BHAGAVANTAM (Delivered on 1 May, 1970)  
RAMAN SCATTERING IN CRYSTALS
- 1974 A. N. KHOSLA (Delivered on 10 October, 1974)  
CONTRIBUTIONS TO PHYSICAL AND TECHNOLOGICAL SCIENCES

*The Sunder Lal Hora Memorial Lecture*

- 1963 P. MAHESHWARI (Delivered on 30 December 1964)  
TEST-TUBE FERTILIZATION OF OVULES *Proceedings Vol. 31B*
- 1965 B. R. SESHACHAR (Delivered on 7 October, 1966)  
SOME ASPECTS OF DIFFERENTIATION AMONGST PROTOZOA  
*Proceedings Vol. 33B*
- 1967 M. J. THIRUMALACHAR (Delivered on 1 January, 1968)  
SAPROPHYtic HABITATS OF CAUSATIVE AGENTS OF HUMAN  
MYCOSES IN INDIA *Proceedings Vol. 35B*

1969 K. RAMIAH (Delivered on 10 October, 1969)  
**PRESENT POSITION OF RICE RESEARCH IN INDIA**  
*Proceedings Vol. 36B*

1971 SALIM ALI (Delivered on 7 May, 1971)  
**ORNITHOLOGY IN INDIA—ITS PAST, PRESENT AND FUTURE**  
*Proceedings Vol. 37B*

1973 T. S. SADASIVAN (Delivered on 3 January, 1974)  
**PHYSIOLOGICAL PLANT PATHOLOGY: A MULTI-DISCIPLINARY SCIENCE**  
*Proceedings Vol. 40B*

1975 L. S. RAMASWAMI (Delivered on 1 January, 1975)  
**SOME ASPECTS OF THE REPRODUCTIVE BIOLOGY OF THE LANGUR MONKEY**  
*Proceedings Vol. 41B*

*The Srinivasa Ramanujan Memorial Medal*

1962 S. CHANDRASEKHAR (Delivered on 16 November, 1968)  
**POST-NEWTONIAN METHODS IN GENERAL RELATIVITY**  
*Proceedings Vol. 40A*

1964 B. P. PAL (Delivered on 1 January, 1966)  
**A. MELIORATION OF WHEAT**  
*Proceedings Vol. 32B*

1972 G. N. RAMACHANDRAN (Delivered on 3 March, 1972)  
**MOLECULAR PHYSICS AND BIOLOGY**

*The Silver Jubilee Commemoration Medal*

1970 S. RANGASWAMI (Delivered on 31 December, 1969)  
**INVESTIGATIONS ON INDIAN CARDIAC DRUGS**

1973 M. S. SWAMINATHAN (Delivered on 2 January, 1973)  
**MALTHUS AND MENDEL**  
*Proceedings Vol. 40B*

1976 A. K. SHARMA (Delivered on 1 January, 1976)  
**A NEW LOOK AT CHROMOSOME AND ITS EVOLUTION**  
*Proceedings Vol. 42B*

*The Shree Dhanwantari Prize Memorial Lecture*

1971 R. VISHWANATHAN (Delivered on 1 January, 1972)  
**PHYSIOPATHOLOGY OF THE LUNG UNDER ABNORMAL PRESSURE**  
*Proceedings Vol. 39B*

1976 B. MUKERJI (Delivered on 1 January, 1976)  
**INDIA'S WONDER DRUG PLANT: *Rauwolfia serpentina***  
*Proceedings Vol. 42B*

*The Professor T. R. Seshadri Seventieth Birthday Commemoration Medal*

- 1973 K. VENKATARAMAN (Delivered on 12 October, 1973)  
PIGMENTS OF *Garcinia* SPECIES *Proceedings Vol. 39A*
- 1976 R. C. MEHROTRA (Delivered on 2 January, 1976)  
COMPOUNDS OF ALKALI AND ALKALINE EARTH METALS  
*Proceedings Vol. 42A*

*The J. C. Bose Memorial Lecture*

- 1977 V. RAMALINGASWAMI (Delivered on January 1, 1978)  
INTERPHASE BETWEEN MALNUTRITION AND IMMUNOLOGICAL  
REACTIVITY

*The Homi J. Bhabha Memorial Lecture*

- 1978 B. V. SREEKANTAN (Delivered on January 1, 1978)  
COSMIC RAY PHYSICS AND ASTROPHYSICS

*The Aryabhata Memorial Lecture*

- 1979 K. R. RAMANATHAN (Delivered on 7 October 1978)  
DEVELOPMENT OF ATOMOSPHERIC AND RELATED EARTH SCIENCES  
IN THE LAST SIXTY YEARS

## THE ACADEMY'S LECTURES

THE following Lectures are awarded by the Academy to persons of any nationality on the recommendation of the Advisory Boards appointed for the purpose. The members of the Advisory Board, however, are not eligible for the award in that year.

In accordance with the Regulations, the selected Lecturer has to deliver, at his discretion, one or two lectures normally during the annual General Meeting of the Academy in October of the year of Lecture and failing this at the succeeding Anniversary General Meeting.

### THE BIRES CHANDRA GUHA MEMORIAL LECTURE

The Bires Chandra Guha Memorial Lecture is awarded from the income of the funds placed at the disposal of the Academy by Dr (Mrs) Phulrenu Guha in the year 1965 in memory of her husband, Dr B. C. Guha. The award is made every three years to a person who has made distinct contributions in the field of biochemistry, nutrition, food and allied problems in the broadest sense.

### THE BASHAMBAR NATH CHOPRA MEMORIAL LECTURE

The Bashambar Nath Chopra Memorial Lecture is awarded from the endowment made in the memory of Dr B. N. Chopra, by his family members : Mrs Iqbal Chopra, Sri Pran Nath Chopra, Shri Ramesh Nath Chopra and Mrs Mohini Duggal in the year 1968. The award is made every three years to a person who has made distinct contributions to any branch of biological sciences coming within the purview of the Academy. The Council at its discretion may, however, award the Lecture every two years if the income permits.

## THE ACADEMY'S LECTURES

The Council decided to institute the following two Lectures in the memory of two late distinguished Fellows:

1. *Sisir Kumar Mitra Lecture* — in the year 1963
2. *Kariamanikkam Srinivasa Krishnan Lecture* — in the year 1965

These Lectures are awarded from the General Fund of the Academy. There is no restriction regarding the period during which contributions are made.

### THE SISIR KUMAR MITRA MEMORIAL LECTURE

The Sisir Kumar Mitra Memorial Lecture is awarded for outstanding contributions to any branch of natural science coming within the purview of the Academy.

### THE KARIAMANIKKAM SRINIVASA KRISHNAN MEMORIAL LECTURE

The Kariamanikkam Srinivasa Krishnan Memorial Lecture is awarded for distinct contribution to any branch of natural science coming within the purview of the Academy.

The above two Lectures are awarded every three years alternately.

## LECTURES

### THE SISIR KUMAR MITRA MEMORIAL LECTURE

- 1966 K. R. RAMANATHAN
- 1972 R. N. CHAKRAVARTI
- 1978 T. RAMA CHANDRA RAO

### THE BIRES CHANDRA GUHA MEMORIAL LECTURE

- 1969 V. SUBRAHMANYAN
- 1972 A. SREENIVASAN
- 1975 J. GANGULY
- 1978 M. G. DEO

### THE KARIAMANIKKAM SRINIVASA KRISHNAN MEMORIAL LECTURE

- 1969 R. K. ASUNDI
- 1975 A. P. MITRA

**THE BASHAMBAR NATH CHOPRA MEMORIAL LECIURE**

- 1971 P. N. WAHI  
 1974 J. VENKATESWARLU  
 1977 B. K. BACHHAWAT

**LECTURES***The Sisir Kumar Mitra Memorial Lecture*

- 1966 K. R. RAMANATHAN (Delivered on 5 May, 1967)  
 S. K. MITRA'S CONTRIBUTIONS TO THE STUDY OF THE EARTH'S  
 UPPER ATMOSPHERE *Proceedings Vol. 35A*
- 1972 R. N. CHAKRAVARTI (Delivered on 31 December, 1972)  
 REACTIONS IN HIGH BOILING SOLVENTS *Proceedings Vol. 40A*
- 1978 T. RAMACHANDRA RAO (Delivered on 7 October 1978)  
 THE MALARIA PROBLEM: THE MOSQUITO FACTOR

*The Bires Chandra Guha Memorial Lecture*

- 1969 V. SUBRAHMANYAN (Delivered on 11 October, 1969)  
 SOME APPLICATIONS OF TECHNOLOGY FOR BETTERMENT OF  
 NUTRITION *Proceedings Vol. 36B*
- 1972 A. SREENIVASAN (Delivered on 1 January, 1973)  
 RADIATION EFFECTS ON LIFE PROCESSES : SOME BASIC AND  
 APPLIED ASPECTS
- 1975 J. GANGULY (Delivered on 10 October, 1975)  
 RECENT ADVANCES IN THE PHYSIOLOGY OF VITAMIN A  
*Proceedings Vol. 41B*

*The Kariamanikkam Srinivasa Krishnan Memorial Lecture*

- 1969 R. K. ASUNDI (Delivered on 2 January, 1970)  
 ISOTOPES AND SPECTROSCOPY *Proceedings Vol. 36A*
- 1975 A. P. MITRA (Delivered on 9 October, 1975)  
 CHEMISTRY OF THE EARTH'S ATMOSPHERE AND ITS IMPLICATIONS  
 IN RADIO COMMUNICATION AND ENVIRONMENTAL HAZARDS

*The Bashambar Nath Chopra Memorial Lecture*

- 1971 P. N. WAHI (Delivered on 2 March, 1972)  
 EPIDEMIOLOGY OF ORAL CARCINOMA *Proceedings Vol. 39B*
- 1974 J. VENKATESWARLU (Delivered on 1 January, 1975)  
 CHROMOSOME PAIRING IN AUTO-POLYPLOIDS *Proceedings Vol. 41B*
- 1977 B. K. BACHHAWAT (Delivered on January 2, 1978)  
 GLYCO CONJUGATES CELL BIOLOGY

## THE ACADEMY'S FUNDS

THE following funds are being administered by the Academy :

### CHANDRAKALA HORA MEMORIAL MEDAL FUND

In the year 1945, Dr S. L. Hora and Mrs V. Hora made an endowment of Rs. 3,000.00 for the purpose of founding a Medal in the memory of their daughter Kumari Chandrakala Hora, to be awarded for conspicuously important work on the development of fisheries in India during the five years preceding the year of award. The sum has been invested in 3 per cent Conversion Loan and funded as a separate account; and the interest accrued is utilized for the award of the Medal. The net balance of the fund at the close of the year 1977-78 was Rs. 2,686.71.

### DR S. S. BHATNAGAR MAMORIAL FUND

This fund originated in the year 1955 from donations from Fellows and others amounting to Rs. 5,366.25. Its object was to perpetuate the memory of the late Dr. S. S. Bhatnagar, an eminent scientist, who made great contribution to the cause of science and industry. The sum has been invested in the fixed deposit and savings bank with the State Bank of India. The interest accrued is utilized to meet a part of expenditure towards the cost of the Shanti Swarup Bhatnagar Medal. The net balance of the fund at the close of the year 1977-78 was Rs. 9,045.32.

### BIRES CHANDRA GUHA MEMORIAL LECTURE FUND

In the year 1966, Dr (Mrs) Phulrenu Guha made an endowment of Rs. 10,000.00 for the purpose of founding a Lecture-ship in the memory of her husband, Professor Bires Chandra Guha, to be awarded for outstanding contributions in the field of biochemistry, nutrition, food and allied problems in the broadest sense. The sum realized has been invested in the fixed

deposit and savings bank with the State Bank of India, Delhi and funded as separate account; and the interest accrued shall be utilized for the award of the lectureship. The net balance of the fund at the close of the year 1977-78 was Rs. 16,991.36.

#### **POPULARIZATION OF SCIENCE FUND**

This fund was started in the year 1947 from subscriptions from the public amounting to Rs. 8,052.00; its object was the 'Popularization of Science'. A part of this amount was spent in getting paintings representing 'Evolution of Life'. The sum has been invested in the fixed deposit and savings bank with the State Bank of India. The interest accrued will be utilized towards part of expenditure for the Silver Jubilee Commemoration Medal to be awarded for the popularization of science. The net balance of the fund at the close of the year 1977-78 was Rs. 8,929.99.

#### **SHREE DHANWANTARI PRIZE FUND**

In the year 1969, Shri Anant Krishna Asundi, B.A., LL.B. (Bom.), Retired District and Sessions Judge, Bijapur (Karnataka) made an endowment of Rs. 16,000.00 for the purpose of founding a prize in memory of his youngest daughter Shrimati Akkadevi to be called SHREE DHANWANTARI PRIZE and awarded every five years for conspicuously important work done in India in medical science in its widest sense as described in Para 2 of Regulations governing the award of the prize. The sum of Rs. 16,000.00 realized has been invested as a separate account and the interest accrued is utilized for the award of the prize. Any excess if accrued in the amount of the prize resulting from any lapse of the award or otherwise shall be added to the principal of the endowment until it increases by 50% of its previous value, when the cash amount of the prize shall be increased proportionately and this procedure followed continuously.

A further gift of Rs. 2,500.00 was made by Shri A. K. Asundi with the request that this sum with interest realised thereon and the interest realized on Rs. 16,000.00 may be utilized to make the first award of the prize in 1971.

The award for 1971 has already been made and the net balance of the fund at the close of the year 1977-78 was Rs. 20,120.145. This amount has been invested in the fixed deposit and savings bank account with the State Bank of India, Delhi.

#### **BASHAMBAR NATH CHOPRA MEMORIAL LECTURE FUND**

In the year 1968, the family (Mrs Iqbal Chopra, Shri Pran Nath Chopra, Shri Ramesh Nath Chopra and Mrs Mohini Duggal) of Dr B. N. Chopra made an endowment of Rs 10,000.00 for the purpose of founding a lectureship in the memory of Dr. B. N. Chopra, to be awarded to a person who has made distinct contributions to any branch of biological sciences coming within the purview of the Academy. The sum has been invested in the fixed deposit and savings account with the State Bank of India, Delhi and funded as a separate account; and the interest accrued is being utilized for the award of lectureship.

The balance in this fund at the close of the year 1977-78 was Rs. 12,596.11.

#### **PROFESSOR T. R. SESHADEVI SEVENTIETH BIRTHDAY COMMEMORATION MEDAL**

In the year 1970, an endowment of Rs. 10,000 was made by the students of Professor T. R. Seshadri for instituting 'Professor T. R. Seshadri Seventieth Birthday Commemoration Medal'. The sum has been invested in fixed deposit with the State Bank of India, Delhi, and funded as a separate account. The interest accruing shall be utilized for the award of medal.

The balance in the fund at the close of the year 1977-78 was Rs. 12,376.39

#### **VISWAKARMA FUND**

In the year 1976, an endowment of Rs. 33,000 was made by Dr P. B. Sarkar, FNA, Retired Director, Technological Research Laboratories, Indian Central Jute Committee, P 133, Lake Terrace Calcutta, for the purpose of instituting a suitable

prize to be awarded every third year out of the income of the fund. The Council accepted the donation and decided to institute a medal with a Prize to be awarded every third year to scientists or technologists or any one whose discovery or invention has led to the start of a new industry in India or to significant improvement of an existing process resulting in cheaper or better product. The sum of Rs. 33,000 has been invested as a separate account with the State Bank of India and the interest accrued is utilised for the award of the prize.

#### **SUNDRY DONATIONS, FELLOWS' FUNDING ACCOUNT**

This fund comprises donations received from public bodies and individuals, Compounding Fees and Admission Fees of the Fellows of the Academy. The amount (Rs. 90,016.03) received on this account has been invested separately and interest accrued utilized for general expenses of the Academy.

The balance in the fund at the close of the year 1977-78 was Rs. 1,02,438.03

#### **SILVER JUBILEE FUND**

This fund was started in the year 1960 from the donations amounting to Rs. 2,642.73. Its object was to commemorate the Silver Jubilee of the Academy by awarding a Silver Jubilee Commemoration Medal every three years for the popularization of science. The amount has been deposited in the fixed deposit with the State Bank of India, Delhi. The interest accrued is utilized to meet a part of expenditure towards the cost of the Medal.

The balance in the Fund at the close of the year 1977-78 was Rs. 2203.20.

## THE LIBRARY OF THE ACADEMY

THE Library of the Academy primarily serves the Fellows of the Academy. However, it has also provision for Enrolled Membership of scientific/research personnel stationed at Delhi. The library renders reference service whenever required and extends facilities to all interested for consultation of publications within the library. At present it is receiving about 1000 scientific and technical journals. A printed catalogue of the serials holding of the Library is also available. Book collection of about 20,000 titles mainly consists of General Science, Physical Sciences, Earth Sciences, Biological Sciences and History of Science.

Currently, the library is trying to enrich its collection in publications such as annual reports, project reports, proceedings of conferences symposia (both national and international), documents on science policy of various countries and history of science. The Library welcomes the co-operation of various national and international scientific agencies in this endeavour.

The library also aims at having a complete set of publications of the Fellows of the Academy.

Main regulations of the Library are as follows :

1. The Library is open from 10 AM to 5 PM on all working days.
2. Any Fellow may have books issued to him excepting such as the Council shall order not to be taken out of the Library. The number of books which one shall be ordinarily allowed to have on loan shall be restricted to six save in special circumstances.

3. Any Fellow may have the books issued to him against Library Tickets that may be obtained from the Librarian, Six tickets will normally be given to Fellows. Additional tickets could also be had on specific request.
4. Demands for Library material from outstation Fellows will normally be catered through postal means, and postal expenses incurred in this process would be borne by the Fellow concerned.
5. A Fellow can retain a book normally for a month subject to the condition that, if required by another Fellow of the Academy, it may be recalled earlier. Unbound journals may not be retained longer than one week.
6. Scientific/Research workers stationed at Delhi are also eligible to enrol themselves as members of the Library through a formal application prescribed form obtainable from the Academy's Library along with the deposit of Rs 50 as refundable security. Such application from an employee of an organisation or a research scholar in the University will have to be endorsed by the Head of the Department concerned guaranteeing safe return of the material on loan with such member. No membership fee is levied.
7. Enrolled Members will be entitled to borrow two books at a time for a period of 14 days against Library Tickets. No Journal, loose or bound, would be issued to them.
8. Such scholars as are desirous of making use of the library resources at its premises can enrol themselves as Consultation Members through an introduction by a Fellow of the Academy or Head of the Department/Institution where they are working.
9. Manuscripts, dictionaries, encyclopaedias and other reference books shall not be issued.
10. Books or pamphlets must not be removed from the Library unless properly issued by the Librarian.

11. A person desiring books to be sent to him, shall bear the postal charges thereof. All books so borrowed shall be at the risk of the borrower and he shall have to make good the loss in case of damage or loss of the books.

*Photo-duplication Facilities for the Fellows*

- (a) The Fellows of the Academy may have a Xerox copy of the document needed by them for their scientific work, free of cost. All such requests be sent to the Librarian.
- (b) The Fellows may utilize the facility of having the stencils made by the Electronic Stencil Cutter on payment of Rs 5/- for each stencil.

# THE ACADEMY'S PUBLICATIONS

## *Proceedings*

### **Series A (Physical Sciences)**

Devoted to original research in any branch of Physical Sciences and publishes papers relating to Physics, Chemistry, Geology and papers of interdisciplinary type.

### **Series B (Biological Sciences)**

This is an interdisciplinary journal in Life Sciences, devoted to publication of papers embodying results of original research in any branch of Life Sciences. The major emphasis of the journal will be on publication of studies relating to Physiology, Cell Biology, Cytogenetics, Genetics, Ecology, Biochemistry, Microbiology, Pathology, Endocrinology, etc. relating to plants and animals.

The first issue of the Series A and B was published in 1935 as a single issue for both the branches. It was split into two series in 1955. Normally six issues of Part A and six issues of Part B come out in a year.

**Subscription rate** (each Part A & B) : Inland Rs. 60.00, Foreign £ 9.00 or \$20.00 (Annually — post free). **Single issue** : Inland Rs 12.00, Foreign £1.8 or \$ 4.00.

## *Indian Journal of Pure and Applied Mathematics*

Devoted primarily to original research in Pure and Applied Mathematics. First issued in January 1970. Periodicity; Quarterly up to 1971; published bimonthly in 1972 and from 1973 as a monthly Journal.

**Subscription rate** : Inland Rs 250.00, Foreign £30.00 or \$ 80.00 Annually — post free). **Single issue** : Inland Rs 25.00, Foreign £ 3.00 or \$ 8.00(post free).

## *Bulletins*

Contain Proceedings of symposia. First issued in 1952 and priced individually.

*Biographical Memoirs of the Fellows of the Indian National Science Academy*

First issued in 1966 and priced individually.

*Transactions*

First issued in 1936. Papers are published and priced individually. Discontinued after 1958 and replaced by Monographs.

*Monographs*

First issued in 1960 and priced individually.

*Indian Science Abstracts*

First issued in 1936. Discontinued in 1939.

*Progress of Sciences in India*

First issued in 1953 and priced individually.

*Mathematical Tables*

One volume containing 'Tables of Partitions of Gaussian Integers' has been published in the series of INSA Mathematical Tables. Price Rs. 15.00 (unbound) and Rs. 17.50 (bound).

*Year Book of the Indian National Science Academy*

First issued in 1960 and priced individually.

*INSA Scinetific Report Series*

First issued in 1977 and priced individually

**PUBLICATIONS OF THE NATIONAL COMMISSION  
FOR THE COMPILATION OF HISTORY OF  
SCIENCES IN INDIA**

*Indian Journal of History of Science*

First issued in 1966, Periodicity : Bi-Annual.

Annual Subscription (inclusive of postage) : Rs. 10.00 (inland), £ 1.00 or \$ 2.50 (foreign). Single issue : Rs. 6.00 (inland); 12s. 6d \$ 1.50 (foreign).

*Books*

Caraka Samhita by P. Ray & H. N. Gupta	...Rs 15.00 or 20s.
A Bibliography of Sanskrit Works on Astro- nomy and Mathematics by S. N. Sen	...Rs 20.00, \$ 5.00 or 35s.
Fathullah Shirazi — A Sixteenth Century Indian Scientist by M. A. Alvi & A. Rahman	...Rs 2.50, \$ 0.33 or 0.2s. 9d
Jahangir—The Naturalist by M. A. Alvi & A. Rahman	...Rs 20.00, £1.10
Some Aspects of Prehistoric Technology in India by H. D. Sankalia	...Rs 10.00, \$ 2.50 or £ 1.00
A Concise History of Sciences in India Edited by D. M. Bose, S. N. Sen & B. V. Subbarayappa	...Rs 50.00, \$ 16.00 or £ 6.00
Aryabhatiya (Critically edited with Trans- lation and Notes by K. S. Shukla and K.V. Sharma)	...Rs 21.50, \$ 7.00 or £ 2.75
Aryabhatiya (with the Commentary of Suryadeva Yajvan, ed. by K.V. Sharma)	...Rs 25.00, \$ 8.00 or £ 3.00
Aryabhatiya (with the Commentary of I Bhaskara & Someswara, ed. by K. S. Shukla)	...Rs 40.00, \$ 13.00 or £ 5.00
Rasarnavakalpa (Ed. & translated by Mira Roy & B. V. Subbarayappa)	...Rs 25.00, \$ 5.00 or £ 2.00

All the above publications of the Academy are available for sale from the Editorial Office of the Indian National Science Academy, 1 Bahadur Shah Zafar Marg, New Delhi 110 002, excepting Indian Journal of History of Science, which can be had from the Assistant Editor, Indian National Science Academy, 1 Park Street, Calcutta 700 016.

## REPORT OF THE COUNCIL (For the year ended 31 March 1978)

IN accordance with the Rules of the Academy, the council is to present to its Fellows a report on the activities of the Academy for the previous year at the Annual General Meeting. The Council accordingly presents the report for the 43rd year of the Academy.

It is the sad duty of the Council to place on record its respectful homage to the distinguished Fellows who are no more with us but whose ideas and ideals will be a source of inspiration for posterity. The following Fellows of the Academy passed away after the last report of the Council :

Dr B. C. Basu	Dr A. G. Jhingran
Dr S. C. Chatterjee	Dr K. V. Krishnan
Dr J. J. Chinoy	Dr P. Parija
Dr K. A. Chowdhuri	Dr C. T. Rajagopal
Dr K. R. Dixit	Dr S. M. Sircar
Dr B. B. Dikshit	Dr J. Venkateswarlu
Professor A. K. Gayen	

### 1. COLLABORATION WITH SCIENTIFIC SOCIETIES, ASSOCIATIONS AND STATE SCIENCE ACADEMIES

One of the objectives of the Academy is to effect coordination between scientific academies, societies, institutions and Government scientific departments and services. With the increase in enrolment and establishment of more educational/research institutions, the number of working scientists is increasing at a rapid rate and with it there has also been a steady growth of scientific societies/bodies representing specific disciplines, regions and states. These scientific societies/bodies are engaged in programmes similar to those of the Indian National Science Academy. The idea of collaboration

was initiated to foster the spirit of co-operation between INSA and other scientific societies/Academies/Associations and to work shoulder to shoulder for achieving the common objectives of better science and to build up a science temper. The mechanics of collaboration is being worked out. The scientific societies/Academies and Associations have shown great enthusiasm in this collaboration.

## 2. COLLABORATION WITH COOPERATING ACADEMIES

The relation with other major Science Academies in India (viz. the Indian Academy of Sciences, Bangalore and the National Academy of Sciences, India, Allahabad) was satisfactory. The INSA has provided working space in its premises for the National Academy of Sciences, Allahabad. It has agreed to Collaborate with the Indian Academy of Sciences, Bangalore in the Publication of the *Materials Science Bulletin* (quarterly).

## 3. COLLABORATION WITH SCIENCE ACADEMIES OF NEIGHBOURING COUNTRIES

Collaborative arrangements on matters of Science and Technology with neighbouring countries also received greater attention during this year. The president of the Academy represented the INSA at the 33rd Annual Session of the Sri Lanka Association for the Advancement of Science, held in Colombo in December 1977. The INSA and Japan Science Society have exchanged 11 scientists during the year under this collaborative programme. A great fillip in the INSA and Royal Society of London exchange programme of scientists was made with the signing of an agreement between the foreign Secretary and the Vice President of Royal Society London (Dr. M. G. P. Stoker) and Foreign Secretary, INSA (Dr A. R. Verma) on 27 March 1978. Mr. J. Hurley of the National Academy of Sciences, USA visited INSA for a discussion on collaborative arrangements.

INSA-ISCA-AAAS Seminar of the Asian Region will be held between the 4th and 6th October 1978 at INSA. This will be

recognized as non-governmental initiative related to the 1979 U. N. Conference on Science and Technology for Development and aimed at strengthening the objectives of the UNCSTD. About 15 participants from India, 10 from U. S. A. and 2-3 each from other countries in the Asian Region are expected to participate. This seminar will be a milestone in the achievement of closer collaboration between INSA and American Association for the Advancement of Science.

Collaborative arrangements on matters of Science and Technology with neighbouring countries received greater consideration during the year. Mention may be made of the Science Academies of countries like Bangladesh, Pakistan, Nepal, Srilanka, Malyasia Vietnam and Kenya with which INSA is interested to establish collaboration.

Two meetings of the Committee constituted by the President with representation from the Ministry of Education, Department of Science and Technology, Ministry of External Affairs, Ministry of Health, Department of Space, Department of Atomic Energy, CSIR, TCAR and the UGC were held and matters of general concern were considered. One of the matters considered by this Committee was the augmentation of INSA's financial resources. While it was desired to request the DST to increase its funding as the Academy's activities cover all areas of Science and Technology including agriculture, medical science, electronics, irrigation, power, mass media, etc., involving Ministries of Food and Agriculture, Health and Family Welfare; Power and Irrigation; Energy; Defence; Education & Social Welfare Information and Broadcasting; Electronics, etc., the Academy will be happy to be of use to these Ministries for the common approach to social welfare should the Ministries so desire.

President INSA continued to be a member of the reconstituted National Committee on Science and Technology. To a reference from the NCST whether any change was needed in the present Science Policy Resolution in view of the increased emphasis on the rural development the Council felt that the

Science Policy Resolution was a complete document and did not require any change. However, it was felt that methods of implementation by which agriculture and rural sector could benefit should be spelt out in greater details.

The Council of the Academy had a discussion on the organization of science in India and the scientific affairs of the country. The Council felt that the INSA being the premier scientific body should have a say in the formulation of these policies. A resolution highlighting the role of science and scientists in Planning, reorganisation of large structures, availability of experts or the evaluation of the scientific achievements of the country aimed to improve the economic conditions was unanimously adopted by the Council after prolonged discussion. This is given in *Appendix I*.

The detailed report on various activities of the Academy is as follows :

#### 4. SCIENCE ACADEMY MEDALS FOR YOUNG SCIENTISTS

First instituted in 1974, the Academy selected 14 scientists below the age of 30 (of 31st December 1976) for the award for the 4th year, i. e. 1977. A list of the recipients is given at *Appendix II*. The awards (a bronze medal, cash award of Rs. 1500/- and research grant of Rs. 5000/- from the Kothari Scientific & Research Institute) were presented to the awardees. The awards were presented on the occasion of the Inaugural Session of the Indian Science Congress Association at Ahmedabad on 3rd January 1978 by the Prime Minister of India.

#### 5. ELECTION OF FELLOWS

The Council recommended 29 scientists for election to Fellowship and 5 for election to Foreign Fellowship during the year 1977. All these scientists were elected Fellows. The Council unanimously recommended Professor S. Dhawan for election as Fellow under Rule 7 (e). Professor S. Dhawan has elected.

## 6. ACADEMY AWARDS

The Council decided to award to Dr Ramanathan, FNA Emeritus Scientist, Physical Research Laboratory, Ahmedabad the Aryabhata Medal due for the year 1977. This is one of the three General Medals of the Academy awarded by rotation once in three years for outstanding contributions to any branch of science coming within the purview of the Academy.

The Meghnad Saha Medal for the year 1978 was awarded to Professor D. S. Kothari, FNA. This is one of the General Medals of the Academy awarded once in three years for outstanding contributions in any branch of science coming within the purview of the Academy.

On the recommendations of the respective Advisory Boards the Council decided to make the following awards :

6.1. The P.C. Mahalanobis Medal for the year 1978 to Dr C. Ambasankaran, Director, Electronics and Instrumentation, Bhabha Atomic Research Centre, Bombay for his contribution to accelerator and vacuum technology.

6.2. The Srinivasa Ramanujan Medal for the year 1979 was awarded to Professor R. P. Bambah, FNA, for his outstanding contributions to the field of Geometry of Numbers.

6.3. The Shanti Swarup Bhatnagar Medal for the year 1979 was awarded to Dr Brahm Prakash for his outstanding contributions to the field of Metallurgy.

6.4. The Silver Jubilee Commemoration Medal for the year 1979 was awarded to Dr M.S. Randhawa in recognition of his outstanding contributions to the field of Agricultural Sciences.

6.5. The Professor T. R. Seshadri Seventieth Birthday Commemoration Medal for the year 1979 was awarded to Dr S.C. Bhattacharyya in recognition of his outstanding contributions to the field of Natural Products Chemistry.

6.6. The Vishwakarma Medal for the year 1979 was awarded to Dr Sukh Dev in recognition of his outstanding contributions to the field of Natural Products.

### PRESENTATION OF MEDALS

A Science Academy Medal for Young Scientists awarded to Dr M. N. Chandrasekharayya was presented to him at a function organized under the auspices of INSA Local Chapter at Hyderabad on June 17, 1977. Dr. Chandrasekharayya delivered a lecture at that time.

Dr Ved Ram Singh, N. P. L. New Delhi delivered a lecture on 'Semiconductor Strain Gauge Transducers' at the Indian National Science Academy on 15th October 1977. A Science Acadmey Medal for Young Scientists for the year 1974 awarded to him was presented to him by the president. A citation was read by Professor A.N. Mitra.

The J. C. Bose Medal for the year 1977 was presented to Dr V. Ramalingaswami, FNA at the time of the Anniversary General Meeting of the Academy in January 1978. Dr Ramalingswami delivered the Medal lecture on 'Interphase between Malnutrition and Immunological Reactivity'.

The Homi J. Bhabha Medal for the year 1978 was presented to Professor B.V. Sreekantan and he delivered the medal lecture on 'Cosmic Ray Physics and Astrophysics' at the Anniversary General Meeting held on 2nd January 1978.

The honorarium of Rs. 1500/- attached to the Bashambar Nath Chopra Lecture was presented to Professor B. K. Bachhawat at the Anniversary General Meeting held on 2nd January 1978 at Ahmedabad. Prof. Bachhawat delivered a lecture on 'Glycoconjugates in Cell Biology'.

It is with profound grief the Council wishes to mention that the first D.N. Wadia Medal for year 1977 awarded to Professor A.G. Jhingran could not be presented to him in person because of his demise. The Medal was sent to Mrs. Jhingran on her request and the Medal lecture proposed to be delivered at the time of the Annual General Meeting of the Academy in October 1977 will be published in the *Proceedings of the Academy*.

A Science Academy Medal for Young Scientists for the year 1974 awarded to Dr V. K. Patodi was presented posthumously to his wife.

## 8. ROLE OF THE ACADEMY IN THE SCIENCE AND TECHNOLOGY COMPONENTS OF THE 6TH FIVE-YEAR PLAN

A discussion meeting on the Role of the Academy in the Science and Technology Components of the VIth Plan was held on 26th April 1977 in which a number of distinguished Fellows and other scientists from University of Delhi, Jawaharlal Nehru University, Indian Institute of Technology, Indian Agricultural Research Institute, etc. participated. Working papers of the following topics were presented :

- |   |                                  |
|---|----------------------------------|
| 1. Heavy Ion Research and<br>Macronuclear Physics   | Dr R. Ramanna<br>Dr P.K. Iyengar |
| 2. Fast Reaction in Chemistry   | Dr P.T. Narasimhan               |
| 3. Basic Sciences and Medicine  | Dr V. Ramalingaswami             |
| 4. Basic Science in Biology   | Professor K.N. Saxena            |
| 5. Basic Science and Agriculture  | Dr B.R. Murty                    |
| 6. Inter-disciplinary studies<br>on the origin and spread of<br>metal technology in India | Dr M.N. Deshpande                |

## 9. SYMPOSIA AND SEMINARS

A Summer School on Non-aqueous solvents was held in the Punjab University, Chandigarh under the convenership of Professor R.C. Paul from 1-4 June 1977. Fourty three participants discussed chemistry in molecular Non-acqueous solvents, reaction mechanism, Physico-chemical Studies, Spectroscopic studies, Determination of Stability Constants, Synthesis of New Compounds by the Use of Non-aqueous Solvents and the Chemistry in Liquid Sodium Metals.

A symposium on 'Remote Sensing for Hydrology Agricultural and Mineral Resources' was held at the Space Application

Centre, Ahmedabad from 15th to 17th November, 1977 under the joint auspices of the Indian National Science Academy, Space Application Centre, and Physical Research Laboratory. The conveners of the Symposium were Professors K. R. Ramanathan, Yash Pal and Dr P. D. Bhavsar, Co-convener. One hundred and fifty-nine scientists from Government agencies, research laboratories and universities participated in the symposium. Ten invited talks and 49 contributed papers were presented.

A three-day inter-disciplinary symposium on Photosynthesis and Productivity was organised by the Academy during 20-22nd February 1978 at INSA. Dr S. M. Sircar\* was the convener of the Symposium. Dr S. K. Sinha, Water Technology Centre, IARI was the co-convener. The Symposium was inaugurated by Dr M. S. Swaminathan, Director-General, ICAR. About 50 scientists from all over India participated in the symposium.

#### *Symposia and Seminar/Winter School*

9.1. A seminar on 'Weed of the N. L. Region with Special Reference to Eupatorium and Mikania' was organised by the Meghalaya Science Society, Shillong during 8-10th April 1977.

9.2. Symposia on : (1) 'Receptor and Fertility Control, (2) Pathophysiology of Diabetes, and (3) Neuroendocrine Control in the Animal Behaviour were organised on the occasion of the Second National Conference of the Federation of Indian Society of Endocrinology at Central Drug Research Institute Lucknow during 4-7th November 1977.

9.3. A Symposium on 'Ecology and Conservation of Birds and Mammals in India' was held during 8-11th November 1977 at Indian Institute of Science, Bangalore.

9.4. A Symposium on 'Environmental Pollution and Toxicology' was held during 20-30th November 1977 at Haryana Agricultural University, Hissar under the convenership of Dr S. P. Ray Chaudhary, FNA. Symposium was inaugurated by

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\*since deceased

Dr B. P. Pal, FRS, FNA, Past-President INSA, and was attended by several scientists from India and abroad.

9.5 A workshop on Physics Education was organised during 2-10th December 1977 at I.I.T. Madras under the Chairmanship of Professor B. Ramachandra Rao, FNA.

9.6 A Symposium on 'Clinical Pharmacology for Tropical Diseases and Membrane bound Receptors' was organised during 29-31 December 1977 at Calcutta on the occasion of the Decennial conference of Indian Pharmacological Society, Calcutta. The Symposium was organised under the Chairmanship of Dr B. Mukerjee, FNA.

9.7. Annual Space Science Symposium was held during 9-12th January 1978 at Andhra University Waltair.

9.8. Fifth International Wheat Genetics Symposium was held during 23-28 February 1978 at IARI, New Delhi, under the Chairmanship of Dr M. S. Swaminathan, FNA. Wheat Scientists from about 50 countries and about 200 Indian Scientist participated in the Symposium.

9.9 A symposium on 'Industrial Fermentation' was organised at Regional Research Laboratory, Jammu Tawi during March 1978.

9.10. A symposium on 'Modern Trends in Plant Taxanomy' was held during 6-9 March, 1978 at National Botanic Gardens, Lucknow. Leading Botanists of the country from various Universities and Research Institutes and few distinguished Botanists from abroad attended the Symposium. The Sympsoium was inaugurated by Professor V.H. Heywood University of Reading, England.

9.11. A Winter School on 'Recent Advances in Physiology of Crop Production' was organised at Punjab Agricultural University Ludhiana during 20-22 March, 1978. Dr M.S. Randhawa, FNA, was convener of the School and Dr C.P. Malik was co-convener.

## 10. VISITS

A lecture on 'An Approach to Control Agricultural Loses by Biological and Nuclear Techniques' was delivered by Dr K. Sundaram at the General Meeting held on 8th August 1977 at Chandigarh.

Professor Robin Holliday, FRS, National Institute of Medical Research, London visited the Academy. A lecture on Ageing in Human Fibroblasts was delivered by him under the auspices of the Academy at the All India Institute of Medical Sciences, New Delhi on 4th November, 1977.

Dr E. C. Pielou Killam, Research Professor, Dalhousie University, Halifax, Canada visited the Academy on 28th Nov. 1977 and had discussions with Fellows of the Academy. She delivered a lecture on 'Ecology — the modern need for more knowledge at the time.'

Professor E. Bamfo Kwakye, Vice-Chancellor of University of Science and Technology at Kumasi in Ghane visited the Academy on 2nd December 1977 and had discussions with the Officers.

Sir James Lighthill visited the Academy on 8th December 1977 and delivered a talk on Mathematical Theory of a Project for utilising energy from Ocean waves. The Academy had hosted a reception to the participants of the 'International Symposium on Monsoon Dynamics' at that time.

Sir George Porter, winner of Kalinga Prize 1976 visited the Academy on the 13th January 1978 and delivered a lecture on Science for people.

Professor T. R. Odhiambo, Director, International Centre of Insect Physiology and Ecology, Nairobi, Kenya visited the Academy on 27th January 1978. A discussion meeting was arranged with the with the Officers of the Academy at which local Fellows were also invited to participate. Prof. Odhiambo was admitted to Fellowship and he signed the admission register. The scroll was presented to him.

Professor V. Elyutin, Minister of Higher Secondary and Specialised Education, Government of USSR visited the Academy on the 2nd February 1978. The Academy hosted a reception to Professor Elyutin and arranged a group discussion between him and the Fellows.

A lecture was arranged by the Academy at the All India Institute of Medical Sciences on Aspects of Transformation by Tumour Viruses by Professor M. G. P. Stoker, Foreign Secretary and Vice-President, Royal Society, London on 27th March 1978.

A discussion was held in the Academy on 28th March 1978 on the Tornado which struck Delhi early in March.

#### 11. REPRESENTATION OF THE ACADEMY

Dr V. G. Bhide has been nominated representative of INSA on the Indian National Committee for World Energy Conference (1977-78).

Dr B. Ramamurti, FNA has been nominated to represent the INSA at the 41st Session of the International Statistical Institute.

Dr R. Ramanna, President, INSA represented the Academy at the 32nd Annual Session of the Sri Lanka Association for Advancement of Science held in December 1977.

Professor B. R. Seshachar has been nominated to represent INSA on the Advisory Board for Rabindra Nath Tagore Birth Centenary Plaque 1977.

Professor P. R. Pisharoty was nominated to represent the INSA on the Weather Modification Experiment Committee of the Ministry of Civil Aviation and Tourism.

Dr R. Ramanna, President, INSA represented the Academy on Panel V of the National Federation of the UNESCO Associations in India.

The following were nominated as representatives of the concerned cooperating Academies/Institutions for the year 1978 :

- |  |  |
|--|--|
| 1. The Asiatic Society                               | Professor S. Deb                                       |
| 2. National Academy of Sciences,<br>Allahabad, India | Dr B. D. Nagchaudhuri                                  |
| 3. Indian Science Congress<br>Association            | Dr S. M. Sircar (deceased)<br>Presently Dr D. N. Kundu |
| 4. Government of India                               | Dr A. Ramachandran                                     |

## 12. LOCAL CHAPTERS AND REGIONAL UNITS

The Academy is attaching greater importance for the active participation of the Fellows on the matters of importance. The Interaction of the Academy with various National Scientific Agencies and Academies would be more effective through the activities of these local chapters and Regional Units. The Local Chapters at Madras, Bangalore, Allahabad, Kanpur, Lucknow, Vāranasi, Bombay, Poona, Calcutta and Chandigarh continues their activities. The Regional Units were functioning 12 places.

A brief report on the activities of the Local Chapters is given at *Appendix III*.

The fellowship of the Academy at the time of presenting this report stand 402 Fellows and 55 Foreign Fellows.

## 13. LIBRARY

13.1. Two hundred and sixty-five books were added to the Library by purchase and 347 publications were received on complimentary basis. The total number of books in the Library as on 31 March, 1978 was 17, 540. More than 850 current journals on Science & Technology were received in the Library. One thousand seven hundred and twenty two volumes of journals were got bound during this period, raising their number to 14,017.

13.2. Under the scheme for the Compilation of the History of Sciences in India, 12 books were added. The total number of books pertaining to this scheme in the Library is over 1985.

13.3 The number of books/journals issued on loan during the period was 1950, and 985 readers consulted the Library.

13.4. During the year, 6238 documents were photocopied and 9901 copies made. One hundred and sixty four Electronic Stencils were also made.

13.5. Ten persons joined as Enrolled Members of the Academy's Library after depositing a Refundable Security amount of Rs. 50 and the total number of Enrolled Members as on 31 March, 1978 stood at 36.

13.6 As a consequence of the requests sent to the Fellows for their Personal Records Proformae, the Library received duly filled in Proformae from 14 Indian Fellows and 4 Foreign Fellows during this period. The total number of the Personal Records Proformae in respect of the Indian and the Foreign Fellows as on date is 131 and 14 respectively.

13.7. The Library initiated efforts for procuring the materials in accordance with the latest Library policy. A circular letter from the President, INSA, was sent to 766 Indian Scientific Societies to obtain their reports/proceedings/symposia, etc. The Library also organised the Publications exchange records of the Academy and the countrywise Exchange record on card form was compiled. In order to review the existing exchange relations, a circular letter was sent from the Fellow-in-Charge, Library to 320 Foreign Institutions and 100 Indian Institutions. Another circular letter was sent to 266 Foreign Scientific bodies to explore further publications exchange possibilities.

#### 14. PUBLICATIONS

During the period from 1 April, 1977 to 31 March, 1978 the following publications were brought out :

*Proceedings, Part A*

Vol. 42 (1976), No. 6

Vol. 43 (1977), Nos. 1 to 6, including Index.

*Proceedings, Part B*

Vol. 42 (1976), Nos. 2 to 6, including Index.

Vol. 43 (1977), Nos. 1 to 6, including Index

*Indian Journal of Pure and Applied Mathematics*

Vol. 5 (1974), Nos. 10 and 11

Vol. 6 (1975), Nos. 3 to 12, including index

Vol. 7 (1976), Nos. 1 to 4

Vol. 8 (1977), Nos. 1 to 9

Vol. 9 (1978), Nos. 1 to 3

The statement given below represents the position regarding paper published in Proceedings, Parts A & B and the Indian Journal of Pure and Applied Mathematics.

	<i>Proceedings Part A</i>	<i>Proceedings Part B</i>	<i>Indian Journal of Pure &amp; Applied Mathematics</i>
	1. 4. 77 to 31. 3. 78	1. 4. 77 to 31. 3. 78	1. 4. 77 to 31. 3. 78
Papers received	48	86	296
Issues Published	7	11	28
Papers accepted for Publication	20	44	110
No. of papers published	58	57	402

The number of papers published in the *Proceedings* of the Academy in 1977-78, subject-wise is as given below :

*Proceedings, Part A (Physical Sciences)*

<i>Subject</i>	<i>No. of papers</i>
Chemistry	7
General (Pres. Add., Blackett Memorial Lecture)	2
Geology	3
Oceanography	1
Physics	43
Soil Chemistry	1
Soil Physics	1
Total :	58

*Proceedings, Part B (Biological Sciences)*

Plant Ecology	3
Embryology	3
Microbiology	1
Mycology/Phytopathology	16
Plant Physiology	3
Agriculture/Soil Sciences	4
Biochemistry	9
Genetic/Cytology	7
Plant Taxonomy	1
Haematology	1
Animal Nutrition	1
Electron Microscopy	1
Helminthology	1
Reproductive Biology	1
Entomology	3
Neuroendocrinology	1
Ornithology	1
Total	<hr/> 57 <hr/>

*INSA Newsletter — 4 Issues**Biographical Memoirs — Vols. V and VI are in press**Book of Nominations-1978*

Proceedings of the Symposium on *Basic Sciences and Agriculture* (Bulletin No. 55) ... Printed

*Famous Plants* by B. M. Johri & S. Srivastava (Mrs) ... Printed

*Year Book 1977 and 1978* ... Printed

*INSA Scientific Report Series*  
Turbulence (Pipe Flows) ... Printed

The Statistical model of atom and its applications ... Printed

## 15. NATIONAL COMMISSION FOR THE COMPILATION OF HISTORY OF SCIENCES IN INDIA

The Academy has taken efforts to prepare a primer on each branch of science for collecting primary and secondary source materials in different periods. Already an order has been placed for procuring 62 microfilm copies. Effort is also being made to establish a liaison with oriental libraries for collection, transcription and verification of sources. Similar efforts are also given for collecting sources in Arabic, Persian, Pali, Prakrit and Tibetan sources.

A proposal on Scientific and Technological Exchange between Soviet Central Asia and India during Medieval Period has been approved on an experimental basis by the Indo-Soviet Joint Committee and a 9-member panel has been formed to prepare the planning and mechanics of the programme.

The monographs on *Susrtuta Samhita*, *Sisyadhirddhida Tantra*, *Medieval Period Bibliographies* have already been sent to the press for publication and the diagrams are being drawn for the monograph of *Sulbasutra* which has also been approved by the National Commission for publication. The work of each of these monographs is in progress. The *Indian Journal of History of Science* (bi-annual), Vo. 12, No. IX, has already been printed.

The National Commission has given due emphasis on the preparation of period-wise volumes of History of Science and source books on various branches of science and technology based on manuscript materials and for building up of a repository of important manuscript sources dealing with science and technology in the Academy to act as an information bank for History of Science studies in the country.

## 16. BASIC SCIENCES SCHEME

Grants to seven projects that completed 3 years during the year were terminated on 31 March 1978. Two new projects in the selected fields were approved for support. The project to

which grants were ceased on March 31, 1978 and those in operation as on March 31, 1978 are listed in *Appendices IV & V.*

Two meetings of Basic Sciences Committee were held on April 5 and December 2, 1977 and the activities of the Basic Science Scheme were reviewed. Efforts were made to formulate projects in the selected fields by arranging meetings of the experts in the respective fields. The projects were approved in some of the selected fields and in the others action is being pursued. A circular was issued inviting Research Proposals from Fellows of the Academy and all the Universities/Research Laboratories in the Country. The areas in which proposals are invited are as under :

1. Genetics and Behaviour
2. Basic Research in Material Sciences
3. Basic Problems of Fish Nutrition, Genetics and Hybridisation
4. The Rodent, Bird and Pest-Control
5. Non-linear phenomena in plasma waves and instabilities (Solid State/Plasma Physics)
6. Exploitation of unconventional energy resources
7. Photochemistry
8. Bio-inorganic Chemistry
9. Solid State Chemistry
10. Wind Forces on Tall and Slender Structures
11. Growth and Differentiation in Normal and Cancer cells
12. Genetics of Biological Nitrogen Fixation
13. Hormonal Control and Physiology of flowering

So far the Academy has received nearly 150 Research Proposals which have been sent to experts for assessment and these will be placed for consideration of the Basic Sciences Committee at its next meeting.

## 17. INTER-ACADEMY EXCHANGE PROGRAMME

### 17.1. INSA-Royal Society Exchange Programme

*British Scientists to India :*

- (i) Professor M. G. P. Stoker, Foreign Secretary and Vice-President, Royal Society, London accompanied by Mrs. Stoker visited India from 25th March to 1st April 1978. Professor Stoker visited the Academy and had a meeting with Dr A. R. Verma, Foreign Secretary and signed an agreement on Exchange of Scientists Programme on 27th March 1978, on behalf of their respective organisations. Professor Stoker delivered a lecture at All India Institute of Medical Sciences, New Delhi, visited Udaipur, Bombay — Tata Institute of Fundamental Research, Tata Cancer Hospital, Bhabha Atomic Research Centre and Haffkine Institute.
- (ii) Dr J. E. Jayne, Department of Mathematics, University College, London — two months from the 28th March, 1977. He spent the major part of his stay at the Indian Statistical Institute, Calcutta and also visited Mathematical Institute, Madras; University of Madurai; Indian Institute of Science; Bangalore; TIFR Bombay; Punjab University, Chandigarh and University of Delhi.
- (iii) Professor & Mrs. A. W. Wolfendale, FRS, Deptt. of Physics, University of Durham, Durham — September 8-17, 1977, University of Delhi, Delhi; TIFR, Bombay; Raman Research Instt., Bangalore.
- (iv) Dr D. N. Raine of Birmingham Children Hospital Birmingham, U.K.—October 16 to 5th November 1977. Participated in the INSA-sponsored International Workshop on 'Medical Genetics' at Pondicherry from October 17-19, 1977 and attended International Congress on Paediatrics held at Delhi from October 23-29. Dr Raine also visited other institutions at Bombay, Bangalore, etc.

- (v) Dr Nine Carson (Mrs), Nuffield Department of Child Health, Queens University, Belfast October 16 to 3rd November 1977. Participated in the International Workshop on Medical Genetics, Pondicherry and International Congress on Paediatrics, Delhi. She also visited various institutions in Delhi, Bombay, Bangalore, etc.
- (vi) Professor F. G. Smith, Director, Royal Greenwich Observatory, U. K. — October 18-25, 1977, Raman Research Institute, Bangalore.
- (vii) Professor C. G. Wyne, Royal Greenwich Observatory, U. K. — October 25 to November 1, 1977. Indian Instt. of Technology, Delhi.
- (viii) Professor J. M. Hirst, FRS, Director, Long Ashton Research Station, Bristol, U. K. visited India from 18th November to 3rd December, 1977. Professor Hirst participated in INSA/HAU symposium on 'Environmental Pollution and Toxicology' at Hissar and also visited University of Agricultural Sciences, Bangalore; Indian Crop Research Institute, Hyderabad; Central Plant Protection Institute, Assam Science Society and Horticulture & Fruit Utilisation (U. P.)
- (ix) Mr J. E. Besag of Department of the Mathematics, University of Durham, Durham, visited India from 3rd December 1977 to 15th January 1978. Participated in the 41st Session of the Indian Statistical Institute, New Delhi from 5-15 December 1977 and also visited other Institutes in Delhi, Bombay, Calcutta, etc.
- (x) Professor R. H. Pain of the Deptt. of Biochemistry, University of Newcastle Upon Tyne, U. K. from 2-21 January, 1978. Participated in the International Symposium on 'Bio-molecular Structure Conformation Function and Evolution held at Indian Institute of Technology, Madras and also attended Winter School on 'Methods in Bio-molecular Structure' in Madras. Visited University of Madras, Indian Institute of

Science, Bangalore, School of Chemistry, Hyderabad and Saha Institute of Nuclear Physics, Calcutta.

- (xi) Professor J. L. Horne of the Department of Aeronautical Engineering, The Queens University of Belfast — 6 months from 2nd February, 1978 Prof. Horne worked at the Deptt. of Aeronautical Engg., Indian Instt. of Science, Bangalore and I. I. T. Kanpur.
- (xii) Professor J. S. Anderson, FRS, Edward of the Davies Chemical Laboratories — Thirty-five days from 23rd February 1978 Visited Institutes in Bangalore, Mysore, Madras (IIT), Hyderabad, Bombay (IIT/BARC) and Delhi (IIT/NPL, etc).

*Indian Scientists to U. K. :*

- (i) Professor M. A. Qayyum, Head of the Deptt. of Zoology Saifia College, Bhopal for 6 months from 20th May 1977 and worked at the University College, London.
- (ii) Professor T. V. Desikachary, Professor Emeritus, University Botany Laboratory, University of Madras, Madras, for 6 months from 13th June 1977 and worked at the British Museum of National History, U. K.
- (iii) Professor C. N. R. Rao, Indian Institute of Science, Bangalore, visited U. K. from 1-15 September 1977 to participate in the 'Faraday Discussion'.
- (iv) Professor (Mrs.) Monisha Bose of Saha Instt. of Nuclear Physics, Calcutta, for 3 months from 9th February 1978, and worked with Prof. B. Bleaney of the University of Oxford, Deptt. of Physics, Clarendon Lab., Parks Road, Oxford.
- (v) Professor J. Ganguly, Chairman, Deptt. of Biochemistry Indian Instt. of Science, Bangalore from 12th March to 24th April 1978.

### 17.2. INSA-JSPA Exchange Programme

*Japan Scientists to India*

- (i) Professor Saburo Miyachi, Director, Cosmic Ray Lab. Tokyo University, from March 22 to April 9, 1977.

Saha Instt. of Nuclear Physics, Calcutta, University of Delhi, BARC, TIFR, Bombay, Indian Instt. of Science, Raman Res. Instt. and National Aeronautical Lab., Bangalore, Madras University, Instt. of Mathematical Physics, Madras.

- (ii) Professor Takashi Tomana, Kyto University, Vice-President of the Japanese Society for Horticultural Science from 29th March to 20th April 1977. He worked at Madras University, Indian Horticultural Res. Instt., Bangalore, University of Calcutta, Tamilnadu Agricultural University, Coimbatore.
- (iii) Professor Y. Asada, Ehime University, Mitsuyama, Japan from 26th November to 12th December 1977. Professor Asada's visit was primarily concerned with his participation at INSA/HAU. Symposium on Environmental Pollution and Toxicology, Hissar. Professor Asada also visited Agril. University of Indian Horticulture Res. Instt., Bangalore and Indian Agril. Res. Institute New Delhi.
- (vi) Dr Shoichi Tanaka of Faculty of Agriculture, Tama-gawa University Tokyo from 15th December to 5th January, 1978. Prof. Tanaka's visit was mainly concerned with his participation at International Sympoium on Citriculture (16-22 Dec. 1977) at Indian Instt. of Horticulture Research, Bangalore. He also visited Plant Virus Research Station, April. Col. Estate Poona and North Bengal University, Bagdogra, etc.
- (v) Dr Kiyoshi Takahashi, Assoc. Professor, Deptt. of Physical Electronics, Instt. of Tech. Tokyo for 17 days from 15th to 31st January 1978. Dr Takahashi's visit was mainly concerned with participation at the International Solar Energy Conference 16 to 21 January 1978 at new Delhi. He also visited Delhi University, Solid State Physics, Lab., Delhi Central Electronic Engg. Res. Instt., Pilani, I.I.T. Kanpur and Bhabha Atomic Research Centre, Bombay.

### *Indian Scientists to Japan*

- (i) Professor Raghuvir Singh, Deptt. of Electronics and Communication Engg., University of Roorkee, for 2 months from 17th January 1978.
- (ii) Professor R. S. Mishra, FNA & Head of the Deptt. of Mathematics, Banaras Hindu University, Varanasi for 28 days from 10th February 1978.
- (iii) Professor G. P. Sharma, FNA & Head of the Deptt. of Zoology, Punjab University for 28 days from 16th February 1978.
- (iv) Dr Krishan Lal, Asstt. Director (Sc.E) National Physical Lab., New Delhi for 8 weeks from 11th March 1978 and worked with Professor K. Kora of Tokyo University, Tokyo.
- (v) Dr C C. Bidappa, Central Rice Research Institute, Cuttack is in Japan for one year since 1<sup>st</sup> March 1978.
- (vi) Dr S. K. Gupta, Reader in Soil Science, University College of Agriculture, Calcutta University, Calcutta is in Japan for one year from 25th March 1978.

### 17.3. INSA-IFS Scheme

During the year 5 Indian Research Projects received financial assistance.

### 17.4. Other Miscellaneous Activities

- (i) Collaborative Programme with other foreign Academies. The Academy has initiated steps to have collaborative programme with the Polish Academy of Sciences and Yugoslavian Academy of Sciences and Arts.

### 17.5. INSA-NAS Programme

- (i) The NAS nominated Mr John G. Hurley to visit India in May 1978 for initiating a preliminary discussion for collaboration between INSA & NAS.

### 17.6. Other Visits (Besides under INSA/RS/JSPS)

- (i) Professor Bernard Pullman, Director, International Academy of Quantum Molecular Sciences, Paris & Madam A. Pullman of Instt. de Biologic, Univ. of Paris visited India from 2nd April to 14th April 1977 and worked at University of Delhi, All India Instt. of Medical Sciences, New Delhi, Indian Institute of Science, Bangalore.
- (ii) Dr R. Ramanna, President, INSA & Director, Bhabha Atomic Research Centre, Bombay visited Colombo from December 6-13, 1977 to participate in the 33rd Annual Session of the Sri Lanka Association for Advancement of Science from December 6-10, 1977.
- (iii) Mr J. G. Charney, Representative of National Academy of Sciences Washington (USA) visited India from December 5-9, 1977. Represented NAS at the IUTAM/IUGG International Sympsoium on Monsoon Dynamics held at IIT, Delhi from 5-9 December 1977.

### 17.7. Meetings

- (i) A meeting of the Expert Committee on International Foundation for Science (IFS) was held on 9th February 1978 at the Academy.
- (ii) A meeting was held between Professor M. G. P. Stoker, Foreign Secretary and Vice-President, Royal Society, London and Dr A. R. Verma, Foreign Secretary INSA on 27th March 1978 at the Academy premises and an agreement on exchange of scientists programme was signed by professor M. G. P. Stoker and Dr A. R. Verma on behalf of their respective organisations during the meeting. A copy of the agreement is enclosed *Appendix VI*.

## 18. ICSU

### 18.1. Delegation to ICSU-sponsored International Conferences

- (i) During the period from 1.4.77 to 31.3.1978 the Academy sponsored delegation of 92 scientists to 38

international ICSU sponsored conferences. Particulars regarding names of scientists, conferences attended and financial assistance by INSA and as indicated in *Appendix VII*.

#### 18.2. Delegation to Non-ICSU Conferences

During the above period, the Academy sponsored delegation of 9 scientists to 2 Non-ICSU international conferences. Particulars regarding names, conferences attended and the financial assistance are indicated in *Appendix VIII*.

#### 18.3 International Symposia/Conferences held in India

Following International Symposia/Conferences etc., were held in India during the period for which the Academy extended suitable financial assistance :

- (i) International IUGG/IUTAM sympsoium on Monsoon Dynamics held at Indian Instt. of Technology, New Delhi during 5-9 December 1977.
- (ii) International Symposium on 'Biomolecular Structure Conformation, Function and Evolution' at University of Madras from January 4-7, 1978.

#### 18.4 National Workshops/Symposia etc.

Following national symposia/workshops etc., were supported by the Academy :

- (i) Workshop on Physics Education at Physics, Department, Indian Institute of Technology, Madras from 2-10 Dec. 1977.
- (ii) Annual Space Science Symposium at Physics Department of Andhra University, Waltair, 9-12, January, 1978.

#### 18.5 Meeting held During the Period

Following meetings were held during the period :

- (i) Meeting of the National Committee for ICSU on 27.4.1977.

- (ii) Meetings of various National Committees were held on 4.3.1978.

The Council felt that funds allocated for activities under ICSU are inadequate and Govt. may be approached for allocation of more funds.

## 19. INDO-SOVIET

### 19.1. Projects

Seventeen Projects had been approved for collaboration which have been functioning with association of various institutions (*Appendix IX*).

Five new projects are also under process of implementation.

### 19.2. Symposium

- (i) During the period under report, the 2nd Indo-Soviet Symposium on 'Embryology of Crop Plants' was held at Leningrad (USSR) from 23rd to 26th August 1977. A team of eight Indian Scientists led by Professor B.M. Johri participated in the symposium.
- (ii) *Vth Indo-Soviet Symposium on 'Chemistry of Natural Products' at Eravan, Armenia in May 1978*

The steering Committee for the above symposium at its meeting held on 17.11.1977 recommended an Indian delegation of 20 members to participate in the Symposium.

- (iii) *3rd Indo-Soviet Symposium on 'Earth Sciences' to be held at Bangalore in November 1978*

The Steering Committee for the Symposium at its meeting held on 28.11.1977 recommended 24 Indian delegates for participation in the sympsoium. A formal invitation was sent to USSR Academy of Sciences, Moscow to invite ten Soviet scientists to participate in the symposium."

### 19.3. Meetings

- (i) Meeting of the Indo-Soviet Joint Committee (Delhi based Members was held at the Academy on 15th July 1977).
- (ii) Meeting of the participating institutions of the following Indo-Soviet projects were held during the period under report,
  - (1) Plasma Physics
  - (2) Statistics and Probability Theory
  - (3) Low Temperature Physics
  - (4) Biological Nitrogen Fixation in Soil
  - (5) Geothermal Studies
  - (6) Hydrogeological Studies
  - (7) The Chemistry and Utilisation of Natural Products and Physico-chemical studies on peptides
  - (8) Mechanism of crystal growth
  - (9) Liquid Crystals
- (iii) A meeting was held between the visiting Soviet officials, Dr N. M. Kisselev and Dr. V. I. Tkatchenko and the officers of the Academy on Monday the 16th January 1978 and reviewed the Status of the programme existing under the Indo-Soviet Collaboration.

### 19.4. Visits

There was an exchange of scientists from both sides :

#### *From USSR to India*

- (i) Dr I. M. Zhelenzykh and Dr S. P. Mikheev of the Instt. for Nuclear Research, Moscow visited TIFR, Bombay for a period of 2 weeks, from 28.3.1977.
- (ii) Dr (Mrs.) L. A. Tarutina of the Instt. of Genetics and Cytology, Minsk and Dr M. O. Aliev of Instt. of Genetics and Selection, Baku, USSR visited IARI, Delhi University, Central Sericultural Research Station, Mysore, Berhampore, Central Silkworm Seed Station, Pampore, Kashmir for one month, from 14.4.1977.

- (iii) Dr V. I. Makrov of the Main Astronomical Observatory of the USSR Academy of Sciences, Moscow visited Delhi University, Indian Meteorological Deptt., Delhi; Indian Institute of Astrophysics, Bangalore; Astrophysical Observatory, Kodaikanal, from 26th September to 25th October, 1977.
- (iv) Dr I.B. Danilov of the Institute of Physical Problems, Moscow visited Delhi University, Indian Instt. of Science, Bangalore; Tata Instt. of Fundamental Research, Bombay, from 17.11.1977 to 16.12.1977.
- (v) Dr Yu. I. Koptev of the Physico-Technical Institute of Leningrad, Moscow visited National Physical Laboratory, Delhi; Indian Instt. of Technology, Madras; Indian Instt. of Science, Bangalore and Tata Instt. of Fundamental Research, Bombay, from 30.11.1977 to 29.12.1977.
- (vi) Professor V. V. Penenko, Novosibirsk Computing Centre, Moscow representative of USSR Academy of Sciences, participated at the International Symposium on Monsoon Dynamics held at Indian Instt. of Technology, Delhi, from 5.12.1977 to 9.12.1977.
- (vii) Acad. V. A. Statulliavichus of Lithuanian Academy of Sciences, USSR and Dr V. V. Sazanov, Steklov Institute of Mathematics, USSR visited Indian Statistical Instt.; Delhi, Calcutta, and Poona University, Poona from 15.12.1977 to 29.12.77.
- (viii) A team of six Soviet Specialists namely Dr A. I. Vengur, Dr J. P. Gloushchenko, Dr A. S. Ivanin, Dr M. A. Lazarenko, Dr G. E. Kharechko and Dr D. A. Khilinsky visited National Geophysical Research Instt., Hyderabad in connection with the project 'Deep Seismic Sounding' for a period of four months from 28th December 1977.
- (ix) Dr A. V. Tutukov of the Astronomical Council of USSR Academy of Sciences, USSR visited Raman

Research Instt.; Bangalore; TIFR, Bombay and Delhi University from 4.1.1978 to 1.2.1978.

- (x) Dr (Mrs.) V. P. Ryabchenko of the Division of Bio-organic Chemistry of the Uzbek Academy of Sciences, Tashkent, USSR visited CDRI, Lucknow and CIBA Research Centre, Bombay for a period of two months from 12th January 1978.
- (xi) Dr N. M. Kisselev and Dr V. I. Tkatchenko of the Foreign Relations Deptt., USSR Academy of Sciences, Moscow visited the Academy and BARC, Bombay, from 14.1.1978 to 23.1.1978.
- (xii) Dr L. L. Kashkarov and Dr V. D. Gorin of the Vernad Institute of Geochemistry and Analytical Chemistry, USSR visited for a period of one month from 9.2.1978.
- (xiii) Dr J.V. Teslenko of the Institute of Geological Sciences of the Ukrainian SSR, Academy of Sciences, USSR, worked at the Birbal Sahni Instt. of Palaeobotany, Lucknow for a period of two months from 16.2.78.
- (xiv) Dr I. P. Krylov and Dr A.D. Nikulin of the Institute of Physical Problems, Moscow, visited from the 18th February 1978 for a period of one month.
- (xv) Dr B. S. Volvovsky, Deputy Chairman of Geophysical Committee of the Academy of Sciences, USSR visited N.G.R.I., Hyderabad for 21 days from 20.2.1978.
- (xvi) Dr K. Yu. Zybin and Dr O. S. Belyakov of the Institute of Earth Physics, USSR, visited N.G.R.I. Hyderabad, Indian Instt. of Geomagnetism, Bombay from 27th March for one month.

#### *From India to USSR*

- (i) Dr D. N. Dhar, Indian Instt. of Technology Kanpur, visited the Shemayakin Instt. of Moscow for a period of 7 months from 17.5.1977 to 26.12.1977.
- (ii) Professor G. Suryanarayan, Deptl of Physics, Indian Instt. of Science, Bangalore visited from 23rd May 1977 for 2 weeks.

- (iii) Dr V. S. Narasimham of the Tata Instt. of Fundamental Research, Bombay visited during June 1977.
- (iv) Dr M. V. S. Rao and Dr B. V. Sreekanth of the Tata Instt. of Fundamental Research, Bombay visited the Institute of Nuclear Research of the Academy of USSR, Moscow from 26th August 1977 for two weeks.

## 20. GOVERNMENT GRANT

The details of Government grant received during 1977-78 are given below :

	<i>Amount (Rs)</i>
<i>(a) Non-Plan</i>	
1. Normal Activities	12,50,000.00
2. Summer School	48,000.00
3. ICSU Activities	3,75,000.00
4. ICSU Subscriptions	3,54,318.75
5. Award for Young Scientists	25,000.00
	<hr/>
Total	20,52,318.75
	<hr/>
<i>(b) Plan</i>	
1. Scientific Research & Research Training	10,50,000.00
2. History of Science	2,10,000.00
3. Indo-Soviet Collaboration	3,32,000.00
4. Exchange of Scientists	1,90,000.00
5. Documentation & Publications	10,000.00
6. Non-Recurring	2,10,000.00
	<hr/>
Total	20,02,000.00
	<hr/>
Total A + B =	Rs 40,54,318.75

## 21. PUBLICATION GRANT FROM INSA FUNDS

During 1977-78 grant amounting to Rs. 36,000/- was given to the various scientific societies (*Appendix X*).



## APPENDICS

### Appendix I

Press Release

9th August 1977

THE Council of the Indian National Science Academy feels concerned by the various statements made in the press, at different conferences and other public platforms that the country has not benefitted sufficiently by the ushering in of science and technology since independence. It is to be said, on the contrary that the impact of science and technology on Indian industry and agriculture has been such as to put the country in a very special position among the developing nations of the world. Its approach to its problems through science tempered by its ancient wisdom of viewing everything in a humanitarian way has allowed us develop our technology in such a way as to bring out the genius of its people and be an example to other countries.

It is true that in a situation of a runaway population, the benefits are not visible everywhere, but anyone who wishes to investigate for himself the advances made in agriculture, health, nuclear science space, metallurgy and so on will be dazzled by all that has been achieved in such a short time and much of it purely by Indian efforts. It is well recognised that it is by the application of modern medicine that the country has been able to increase life expectancy, decrease incidence of communicable diseases and to rid itself of epidemic diseases such as small-pox and plague.

It has become fashionable to accuse science and the work of scientists for various acts of omission and commission. The failure to have good water supplies in towns and villages, poor quality of roads, unhygienic hospitals, poorly constructed buildings, lack of nutritious food, etc., are not due to science, but due to poor management and, administration, indecision at political levels and the strong hold of superstitions on our simple folk.

The import of foreign technology begins to look attractive under these conditions, but the real strength of the country lies in its becoming self-reliant in as many aspects as possible. We are not merely a country, but a small continent and have some of the most capable people in the world in our 600 millions. We will never be able to utilise their talents and give them confidence if we run after foreign inputs which for all the advantages they provide in the beginning, will have an adverse effect on our economy due to the high rate of obsolescence of imported technology. There is no

substitute for self-reliance based on indigenous basic and applied research. This is the only way early obsolescence can be avoided. Situations may however exist, as with certain well established technologies, where it would admittedly be futile to expend large sums of money in repetitive R & D efforts rather than importing the know-how for appropriate development towards practical ends. On the other hand, we have the talent and resources for making innovative leads on our own for absorbing imported technologies as well as for competing with contemporary technological advances elsewhere. These should be encouraged.

Lack of proper planning and adequate funding have brought our educational system to a position of stalemate wherein teachers and educators find themselves in the *unenviable* position of having to train large number of students in our colleges and universities. This has led not only to unhealthy proliferation of higher education which has no relevance to the needs of the country but also to an increase in the number of educated unemployed. Vocational training at schools is just a paper plan and polytechnics as well as Industrial Training Institutes as planned today have a long way to go before they are useful to the needs of the area. No attempt has been made to improve the social status of technical worker so that people who wish to become technicians are always made to feel inferior to an administrator. In recent times, there is a feeling that even scientists will be reduced to the position of secondary citizens in matters of decision-making compared to those in administration. We would like to point out that in the advanced countries, Professors and other skilled professionals are highly respected in the community similar to what used to be in ancient India. It is not fully recognized and we should like to emphasize that good science and technology at the frontiers are required for solving complex problems of rural development and for this purpose, proper interfaces have to be developed. It has often been stated that scientists must work in villages. Unless especially trained for this purpose, it would be a waste of their aptitude and training. Their views are rarely accepted at the village especially if they are outsiders.

We understand that science is being reorganised at all levels and the structure of scientific agencies is being altered. It is no doubt necessary that the various commissions and agencies created in the past require reorganisation from time to time. However, it would be in the interests of the country if premier scientific bodies like the Indian National Science Academy are asked to give their views. It is in the interest of science that important decisions on science are not taken by individuals without consultation of a cross-section of the scientific community. It is for this reason as one of the biggest democracies in the world, we must plan for a system in which the difficulties under which scientists work are brought to the attention of the authorities concerned in as many ways as possible. The

INSA is a body recognised for this purpose and would be happy to make its resources available to the Government in all possible ways, whether it is in planning, reorganisation of scientific structures, availability of experts or the evaluation of the scientific achievements of the country.

Whatever approach we adopt to improve economic conditions, the development of science in all its aspects is inescapable in a large country like India. We spend comparatively so little in R & D as a percentage of our G.N.P. If this is increased even marginally, the inevitable progress of becoming a prosperous country through science and education will be greatly speeded up.

The Academy welcomes the statement of the Prime Minister that every effort will be made to ensure that no one in this country remains unemployed within a period of ten years. This in our view can be achieved only through a scientific utilization of all our resources, materials and human.

The Academy extends its fullest co-operation and support to the Government in their endeavours to eradicate poverty, to improve rural economy as well as to evolve plans for development through science and technology.

## Appendix II

### **SCIENCE ACADEMY MEDALS FOR YOUNG SCIENTISTS, 1977**

1. Dr. Ateeq Ahmad (b. 4.12.1949), Division of Biophysics, Central Drug Research Institute, Lucknow-226 001.  
—for his contribution to novel method for purification of glycoproteins enzymes.
2. Dr P. Balaram (b. 19.2.1949), Molecular Biophysics/Structural Chemistry Unit, Indian Institute of Science, Bangalore-560 012.  
—for his contribution to the application of modern spectroscopic methods to the study of Complex biological systems.
3. Dr Asha Chandola (b. 3.2.1947), Department of Zoology, Banaras Hindu University, Varanasi.  
—for her contribution to Iodine Metabolism in submammalian vertebrates.
4. Dr S. K. Dattagupta (b. 19.12.1947), Reactor Research Centre, Kalpakkam-603 102.  
—for his work on stochastic theory of line shape.
5. Dr S. K. Dubey (b. 8.7.1949), Deptt. of Biochemistry, All India Institute of Medical Sciences, New Delhi-110 016.  
—for his contribution to Immunological properties of conjugated human chorionic Gonadotropin (HCG).
6. Mrs V. P. Joshi (b. 4.2.1947), Biology & Agricultural Division, Bhabha Atomic Research Centre, Bombay-400 085.  
—for her original contribution in DNA damage, repair and recombination mechanisms in *H. influenza*.
7. Dr S. C. Kak (b. 21.3.1947), Deptt. of Elect. Engg., Indian Institute of Technology, New Delhi-110 029.  
—for his contribution to communication of signals.
8. Dr A. S. Raghavendra (b. 17.11.1950), Department of Botany, Sri Venkateswara University, Tirupati-517 502.  
—for his contribution in physiology and biochemistry of stomatal movement and a better understanding of the C<sup>4</sup> photosynthesis.

9. Dr R. K. S. Rathore (b. 17.9.1949), Department of Mathematics, Indian Institute of Technology, Kanpur-208 016.  
—for his contribution to approximation theory.
10. Dr N. M. Singh (b. 19.3.1949), School of Mathematics, Tata Institute of Fundamental Research, Bombay-400 005.  
—for his contribution to Combinatorial Mathematics, in the field of Designs.
11. Dr. H. Sinvhal (b. 2.12.1947), Deptt. of Geology & Geophysics, University of Roorkee, Roorkee-246 772.  
—for his work in the field of microseismicity and strain measurements.
12. Shri A. K. Suri (b. 22.5.1949), Metallurgy Division, Bhabha Atomic Research Centre, Bombay-400 085. (presently abroad)  
—for his contribution to the Technology of rare and refractory metal extraction.
13. Dr R. C. Sobti (b. 19.8.1948), Deptt. of Zoology, Panjab University, Chandigarh.  
—for his contribution to Karyotypic diagnosis and prognosis of human disorders particularly the neoplasia.
14. Shri Vijai Kumar (b. 26.10.1947), Seismology Section, Bhabha Atomic Research Centre, Modular Laboratory, Bombay-400 085.  
—for his work on developing indigenous instruments for locating atmospheric explosion.

## **Appendix III**

### **ACTIVITIES OF THE LOCAL CHAPTER**

#### **Allahabad Chapter**

A number of Scientists gave lectures illustrated with slides and participated in discussions. An exhibition of botanical specimens was arranged. An excursion was conducted for Natural study

#### **Bangalore**

Dr N. R. Moudgal, of the National College, Bangalore delivered a lecture on Recent Trends in fertility research on 14th February 1977.

Dr M. K. Vainu Bappu delivered a lecture on 16th May 1977 at Mysore at the General body meeting on 'Minor Members of the Solar Systems'. A trip of the local Fellows in Bangalore to Mysore was arranged.

Professor M. V. George delivered a lecture on pericyclic transformations of the heterotriene systems at Indian Institute of Science, Bangalore, on 8th July 1977. A lecture on Electro-microscopy by Professor J. S. Anderson was delivered at the Indian Institute of Science, Bangalore, on 6th May 1977.

#### **Calcutta**

In addition to various activities, the Calcutta Chapter had arranged the following lectures :

1. Professor O. Siddiqi, FNA, Tata Institute of Fundamental Research, Bombay delivered a lecture on 'Sulphatases of *Aspergillus* Genetic Analysis' on 21st April 1977.
2. Dr B. R. Roy, Director, Central Food Laboratory, Calcutta, on 'Safety of Foods' on 4th May 1977.
3. Dr B. N. Ghosh, Department of Biochemistry, Calcutta University, on 'Membrane, Complement and Lysis' on 10th May, 1977.
4. A meeting was arranged at the Indian Institute of Experimental Medicine, Calcutta on 11th May 1977 under the Chairmanship of Dr S. K. Mukherjee to felicitate the winners of S. S. Bhatnagar Prize, viz., Professor (Mrs.) Archana Sharma, Professor U. R. Ghatak and Professor B. R. Nag. Professor (Mrs) Sharma spoke on 'Genetic and Chromosomal Polymorphism in Plant and Human systems. Professor Ghatak spoke on 'Some New Synthetic

Approaches towards Complex Diterpenoids' and Prof. Nag spoke on 'Electron Transport in Semi-conductors'. A joint meeting of the Local Chapter, Calcutta; the Institution of Chemists (India) and the Indian Jute Industries Research Association was held on June 29 at IJIRA Auditorium to felicitate Dr D. D. Das, winner of National Research Development Corporation Republic Day Award, 1977. Dr Das presented an account of his contribution on 'Utilisation of Jute Wastes and its Impact on National Economy'.

A group discussion on 'Role of Chemistry in Forensic Science' was held at the Forensic Laboratory Building on 2nd July 1977 on the occasion of the Silver Jubilee of the Forensic Laboratory, West Bengal.

Dr Mrinal K. Das of the Chemistry Department, Jadavpur University, delivered a lecture on 'Medicinal possibilities of Boron Compounds' on 12th August 1977.

A meeting of the Local Fellows of the Academy at Calcutta was convened on 15th September 1977 under the Chairmanship of the President of the Academy the question of proper management of Scientific activities of the country and the necessity for involvement of the Academy in it were discussed.

Professor Bily F. Andrew, Chairman, Deptt. of Pediatrics School of Medicine, University of Louisville, USA, delivered a lecture on 'Use of Intravenous Alimentation in Small Infants' on October 13, 1977.

Dr V. Renugopalakrishnan, Assistant Professor of Physiology and Biophysics, University of Illinois, Chicago delivered a lecture on 'Conformation of Peptides and Polypeptides in relation to Biological Activity' on 15th December 1977.

Professor E. Vogal, Director, Institute of Organic Chemistry, University of Koln, West Germany, spoke on 'Arena oxides : Chemistry and Biochemistry' on 3rd January 1978.

Dr A. J. Kanny of the Deptt. of Biochemistry, University of Leeds, England spoke on 'Ultrastructure and Enzymology of the brush-border of the Mammalian Kidney' on 7th January.

Dr G. H. Dodd of the Department of Biochemistry, University of Warwick, England, delivered a lecture on 'An Approach to Onfactory Code'.

Professor Subir K. Bose, Deptt. of Microbiology, Saint Louis University, USA spoke on 'Culture-density-dependent Modulations of Transport' on 23rd February 1978.

#### **Chandigarh**

Dr K. Sundaram, Bhabha Atomic Research Centre, Bombay delivered a lecture on 'An Approach to Control Agricultural Losses by Biological and Nuclear Techniques on 8th August 1977.

Dr M. P. Khanna, Department of Physics, Punjab University, Chandigarh delivered a talk on 'Some aspects of Elementary Particles and their Interactions' on 13th October 1977.

Professor M. L. Lakhanpal, Department of Chemistry, Punjab University spoke on Teaching Concepts of Thermodynamic Theory on 4th November 1977.

A lecture on 'Some Aspects of the Himalayan Geology and the Relation of the Himalayas with Indian Shield' was delivered by Dr M. N. Saxena, Deptt. of Geology, Panjab University, Chandigarh on 18th November 1977.

Professor H. S. Hans, Department of Physics, Punjab University delivered a lecture on 'Modern Low-Energy Accelerators for Nuclear, Solid and Biophysics Problems' on 9th December 1977.

Professor Hansraj Gupta of the Mathematics Department of Punjab University, Chandigarh spoke on 'Indian Calendar' on 16th December 1977.

Dr (Mrs) S. Mehta, Associate Professor of Pediatrics, P. G. I., Chandigarh delivered a lecture on 'Cerebral Circulation and Energy Metabolism in Monkeys with Protein, Calorie Malnutrition' on 10th March 1978.

Dr J. S. Chopra, Associate Professor and Head, Deptt. of Neurology, P. G. I., Chandigarh, delivered a lecture on 'Common Neurological Problems' on 31.3.1978.

### Poona

The Local Chapter was of the view that it should promote science in the villages through action programme. For this purpose, it was decided to adopt a village and work in cooperation with Marathi Vidyan Parishad. The name of the village adopted is Kirkatwadi. A five-point programme for taking science to villages has been chalked out. The programme is built around the school in the village. School age is the most impressionable age since the children come to recognise the value and benefit of science, particularly of hygiene, public health and sanitary measures for their well being, they are likely to carry forward these habits in late life, thereby serving as catalytic agent to bring about social transformation in the village. This is the philosophy guiding the Local Chapter in promoting science in villages.

The Chapter has envisaged the programme in three stages : (i) Development of the school campus, (ii) Building of extra-physical facilities, and (iii) Starting of community kitchen. The first stage has been completed during last year viz., '77-78. It consisted of developing the campus of the

school, erecting a fenced compound around it, levelling the school ground and planting of trees within the campus. The school building was repaired with the help of Zilla Parishad, the fence was erected in cooperation with local people, but a special grant was made available for the purpose by Marathi Vidyan Parishad. Plants were donated by Maharashtra Association for Cultivation of Science, the boys were assigned the task of watering and taking care of them. Most of the trees planted within the campus are growing well. The interest created in planting trees is so great that most households in the village have adopted trees of their own choice in their own compounds. We provided plants to the desiring households and nearly 2/3rds of the plants have been found to grow well.

The entire activity was preceded by series of science lectures given by their school teachers. The school teachers were specially briefed by the members of the Local Chapter and the MVP.

The second stage will consist of boring a tube well and constructing community latrines adequate for use by the students and connecting them to biogas plants. Our aim here would be to motivate children into using community latrines as the first thing in the morning, taking bath and washing clothes as a matter of habit before entering the school. This habit, we believe, would materially help in reducing the incidence of morbidity e.g. scabies, gastro-intestinal diseases, etc. We have prepared detailed plans for the purpose and are approaching the Zilla Parishad and the State Government for the necessary funds. In the meantime, we have started a programme of giving science lectures to the students with a view to arouse their interest in these programmes and establish rapport with boys, parents and people in the village.

The third stage will be to introduce supplementary nutrition programme using the biogas from the biogas plant which we expect will start functioning during the course of a year or two. A large number of nutrition programmes are under way all over the country; but our assessment is that they have achieved a little. This is because there is no basis to expect that intervention at nutritional level alone can bring any visible effects on health, at least not until simultaneously with these programmes measures are taken to improve environment, water and hygiene and sanitation. The digested effluent from the gas plant will be used as manure for the school garden, thus introducing children to the notion of recycling of wastes and economics of permanence.

## **Appendix IV**

### **List of Project to which Grants were ceased from March 31, 1978**

<i>Title of Project</i>	<i>Name of Investigator (s)</i>
1. Theoretical and experimental studies on superconducting tunnelling and system based on it and superinsulation	1. DR V. G. BHIDE, NPL, New Delhi 2. PROFESSOR K. P. SINHA IISc, Bangalore 3. PROFESSOR F.C. AULUCK Delhi University
2. Physiology of reproduction in the male rhesus monkey and its relevance to the control of fertility in the male	1. PROF. M. R. N. PRASAD, Delhi University 2. DR N. R. MOUDGAL,, IISc, Bangalore 3. DR T.C. ANAND KUMAR AIIMS, New Delhi
3. Control mechanism in growth and differentiation in biological systems	1. DR M. G. DEO, AIIMS, New Delhi 2. DR A. L. AURORA, JIPMER, Pondicherry
4. Conductance mechanism in solid phase	DR P. P. RASTOGI, Lucknow University
5. Studies on the ecology of aquatic weeds with emphasis on their projection and possible control measures	DR BRIJ GOPAL University of Rajasthan Jaipur
6. Physiology biochemistry of morphogenesis in Thermophilic fungies	DR B. N. JOHRI, Bhopal University, Bhopal
7. Studies on biochemistry and metabolities of higher fungi	DR S. SENGUPTA Instt. of Experimental Medicine, Calcutta

## APPENDIX V

**APPENDIX V**  
**INSA Research Projects April 1978**

S.N.	Title of the project	Name & Institution of the Principal Investigator & Coordinator (PIC) and Co-Investigator (Co-Inv.) of the Project.	Date of Commencement
1	2	3	4
<b>Inter-Institutional Project</b>			
1.	Lasers-atomic, molecular and solid state studies.	PIC PROF. P. VENKATESWARLU Indian Institute of Technology, Kanpur.  Co-Inv DR D. RAMACHANDRA RAO Lasers & Spectroscopy Laboratory, Indian Institute of Technology, Kanpur.	9.5.1975
2.	Research work with CO <sub>2</sub> Lasers.	PIC DR T. S. JASEJA Maharashi Dayanand University, Rohtak.	Jan., 77
3.	Spectral study of atomic and diatomic plasma generated by high power lasers.	PIC DR K. SATHIANANDAN University of Cochin, Cochin.	26.12.75
4.	Effects of atmospheric turbulence on open air laser communication link.	PIC DR M. MUKANDA RAO Laser Communication Laboratory, Indian Institute of Technology, Madras.	1.1.1976
5.	Kinetic study of transition metal ion catalysed hydrolysis of some esters.	PIC PROF. G. V. BAKORE Dept. of Chemistry, University of Udaipur, Udaipur.	24.7.1976

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|--|--|-----------|---|
| 6. Transition metal ion complexes as catalysts in biochemical reactions.   | Co-Inv 1<br>PROF. S K. BANERJI<br>Birla Instt. of Technology & Science, Pilani.                                  | 10.8.1976 |   |
| 7. Studies on the oxidation and dehydrogenation of organic compounds on some prepared vanadates, polyvanadates, vanadium pentoxide and activated Indian clay minerals. | Co-Inv 2<br>DR K. P. SRIVASTAVA & DR RUP DUTTA<br>Chemistry Group, Birla Instt. of Technology & Science, Pilani. | 2.8.1976  |   |
| 8. Metal carbonyls as catalysts in the industrial processes.   | Co-Inv 3<br>DR S. C. TRIPATHI<br>Gorakhpur University, Gorakhpur.  | 1.1.1976  |   |
| 9. Characterisation of iron, cobalt and nickel complexes and their catalysts for hydrogenation.  | Co-Inv 4<br>DR J. C. KURIACOSE<br>Indian Institute of Technology, Madras.  | 26.4.1976 |   |
| 10. Preparation & characterisation of transition metal derivatives of group IV B elements and their application as catalysts.  | PIC 5<br>DR R. N. KAPOOR,<br>Delhi University, Delhi.  | 24.10.77  |   |
| 11. Archaean geochemistry of the South Indian shield.  | PIC<br>PROF. C. S. PICHAMUTHU<br>Dept. of Mines & Geology, Govt. of Karnataka, Bangalore.                        | 9.2.1977  |   |
| 12. Development & application of geometrical techniques in mineral   | PIC<br>PROF. A. K. SAHA,<br>Geology Department, Presidency College, Calcutta.                                    | 1.1.1975  |   |

Co-Inv	Dr S. V. L. N. RAO Indian Institute of Technology, Kharagpur.	
		1.10.1975
PIC	DR K. VASUDEVA RAO Delhi University, Delhi.	
Co-Inv	DR (Mrs) KAMAL J. RANADIVE, Biology Division, Cancer Res. Institute, Bombay.	
PIC	DR L. K. BHUTANY, Dept. of Dermatology and Venereology, All India Institute of Medical Sciences, New Delhi.	
Co-Inv 1	DR N. C. SETHI, Medical College, Indian (M.P.) DR P. A. SAROJINI, Associate Professor	
PIC	PROF. N. RUDRAIAH, Deptt. of Mathematics, Central College, Bangalore University, Bangalore.	April, 1977
Co-Inv 1	DR MIHIR K. BANERJEE Deptt. of Mathematics, Himachal Pradesh University, Simla.	
, 2	PROF. R. S. NANDA & A. S. GUPTA Deptt. of Mathematics, I.I.T., Kharagpur.	
, 3	PROF. R. K. JAIN Deptt. of Mathematics Indian Instt. of Technology, Kanpur.	
, 4	PROF. A. P. VERMA, Deptt. of Applied Mathematics, S. V. Regional College of Engg. & Technology, Surat.	

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|          |   |   |           |
| Co-Inv 5 | Dr M. N. CHANNABASAPPA<br>Dept. of Mathematics, Karnataka Regional Engg.<br>College, P. O. Srinivasanagar.  |   |           |
| " 6      | PROF. R. NARASIMHA<br>Dept. of Mathematics,<br>Indian Inst. of Science, Bangalore.  |   |           |
| 16.      | Organelle interaction in the formation function and degradation of mitochondria.<br><br>Studies on mitochondria genesis Co-Inv 1<br>and adaptation patterns.<br><br>Effect of association of mitochondria and peroxisomes with chloroplast on its function and structure. | Dr T. RAMASARMA<br>Dept. of Biochemistry, Indian<br>Inst. of Science, Bangalore.                              | 1.9.1977  |
|          | do 2  | Dr J. JAYARAMAN<br>Madurai University, Madurai.   |           |
|          | 16(a) Manipulation of behaviour of insect pests for their control.  | Dr G. S. SINGHAL<br>School of Life Sciences,<br>Jawaharlal Nehru University, New Delhi.                       | 1.4.1978  |
|          | Co-Inv  | PROF. K. N. SAXENA<br>Zoology Department, University of Delhi-7.  |           |
|          |   | Dr S. S. KRISHNA, Reader in Zoology, Gorakhpur University, Gorakhpur.   |           |
|          |   | <b>Individual Scientists, Project</b>   |           |
| 17.      | Investigation of statistical problems connected with transportation and deposition of sediments by moving water.  | Dr SUPRIYA SENGUPTA<br>Senior Lecture in Statistics & Computer Science,<br>Indian Statistical Inst. Calcutta. | Feb. 1976 |

18.	Studies in cloud Physics using cosmic-ray-produced Radio-nuclides.	Nov. 1975	PIC: DR. P. S. GOEL Division of Chemistry, I.I.T., Kanpur	11.11.1975
19.	Coordination chemistry of halo and halide alkoxides of transition metals.		PIC: PROF. R. C. PAUL, FNA Vice-Chancellor, Panjab University, Chandigarh.	
20.	Digital simulation of soil moistures movement vis-a-vis plant life in low rainfall areas of Deccan.	9.1.1976	PIC: DR. J. T. PANIKKAR Civil Engg. Department, Indian Instt. of Tech., Bombay.	
21.	Studies on the Indian monsoon.	Jan. 1976.	PIC: DR. R. ANANTHAKRISHNA Indian Instt. of Tropical Meteorology, Poona.	
22.	Hydraulics of partially penetrating and cavity type tubewells.	16.12.1976	PIC: DR. B. M. SAHNI Civil Engg. Department, G. B. Pant Univ. of Agril. & Technology, Pantnagar, Distt. Nainital (U.P.)	
23.	Localization and quantitation of functional genetic elements controlling regulation in higher biological systems.	15.1.1976	PIC: PROF. A. K. SHARMA, FNA, Dept. of Botany, Univ. College of Science Calcutta University, Calcutta.	
24.	Numerical simulation of meridional monsoonal circulation.	17.10.1975	PIC: DR. M. SANKARA RAO Indian Instt. of Science, Bangalore.	
25.	Effect of certain juvenile hormone analogues on the biology of certain lepidopteran insect pests.	20.1.1976	PIC: PROF. U. S. SRIVASTAVA Dept. of Zoology, Allahabad University, Allahabad.	

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| 26. Aggregation of macromolecules and their compounds in biological systems.  | PIC DR S. K. PODDAR<br>Deptt. of Biochemistry, Indian Instt. of Science, Bangalore.                                      | 2.8.1975     |   |
| 27. Biological studies on the neoplastic transformation of cells.   | PIC DR T. N. CHAPEKAR<br>All India Instt. of Medical Sciences, New Delhi.  | 30.3.1977    |   |
| 27A. Investigations of interstellar molecules.  | PIC PROF. S. N. GHOSH, FNA<br>Deptt. of Applied Physics, Calcutta University, Calcutta.                                  | date awaited |   |
| <b>Young Scientists' Projects</b>   |  |              |   |
| 28. Deformation characteristics of two-phase alloys of aluminum.  | PIC DR. K. A. PADMANABHAN<br>Reader in Physical Metallurgy, Institute of Technology, Banaras Hindu University, Varanasi. | 23.10.1975   |   |
| 29. Thermodynamic and structural investigations of semiconducting chalcogenides.  | PIC DR SHAMSUDDIN<br>Deptt. of Metallurgical Engineering, Institute of Technology, Benaras Hindu University, Varanasi.   | 19.9-1976    |   |
| 30. Geological & geochemical studies of Malani igneous suite with special reference to the mineral economics of Western Rajasthan, India. | PIC DR NARESH KOCHHAR<br>Teaching Assistant, Department of Geology, Punjab University, Chandigarh.                       | 9.1.1976     |   |
| 31. Photosensitivity of different mutagenic treatments in various crop and ornamental plants.   | PIC DR A. S. KHALATKAR<br>Deptt. of Botany Nagpur University, Nagpur.  | 1.7.1976     |   |

		2.3.1976
32.	Kinetic studies of reversible enzymes in relation to allosteric properties.	PIC DR (Mrs.) MANJU RAY Jadavpur University, Calcutta.
33.	Development of exhaust mufflers.	PIC DR M. L. MUNJAL Indian Instt. of Sciene, Bangalore.
34.	An approach to the problem of rooting potential of stem-cutting at cellular and sub-cellular levels.	PIC DR N. C. BHATTACHARYA Punjab Agril. University, Ludhiana.
35.	Reproductive organization of <i>Drosophila</i> chromosomes.	PIC DR S. C. LAKHOTIA Banaras Hindu University, Varanasi.
36.	Studies on model systems of cell-cell and cell-lectin interaction.	PIC DR A. SUROLIA Indian Instt. of Exp. Medicine, Jadavpur, Calcutta.
37.	Unsteady motion in Fluid Dynamics.	PIC DR (Miss) P. MOHAPATRA Utkal University, Bhubaneswar.
38.	Studies on the Chemistry and Pharmacology of Heterocycles.	PIC DR (Mrs.) JULIE BANERJEE University College of Sciences, Calcutta.
39.	Studies on the Ultra structure and Physico-chemical properties of baculoviruses.	PIC DR V. M. PAWAR Marathwada Agril. University, Parbhani (M. S.).
40.	Hypothalmic control of reproduction in some Indian fishes.	PIC DR SHAMIM HAIDER Banaras Hindu University, Varanasi
41.	A detailed study of Lesser Himalayan sedimentary belt and the control of crystalline zone of Kumaon Himalaya.	PIC DR A. R. BHATTACHARYA Lucknow University, Lucknow.
		30.3.1977
		Sept. 1976
		11.1.1977
		11.2.1977
		1.4.1977
		1.2.1977
		16.4.1977
		June 1977
		1977

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42. Studies on cellular differentiation in blue green algae.
43. Targeting of Liposomes to testes using sperm 'Specific' Anti-Lactate Dehydrogenase-X (Anti-LDX-X)

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- PIC DR V. V. S. TYAGI  
Punjab Agril. University, Ludhiana
- PIC DR ATEEQ AHMAD  
Central Drug Res. Instt. Lucknow.

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**Science Service Centres :**

44. Science Service Centre, Deptt. of Organic Chemistry, Indian Instt. of Science, Bangalore.
45. Science Service Centre, Deptt. of Chemistry, Osmania University, Hyderabad.
46. Science Service Centre
47. Science Service Centre, Chemistry Department, Panjab University, Chandigarh.
48. Science Service Centre, Chemistry Department, Roorkee University, Roorkee.
- Inch DR S. N. BALASUBRAMANYAM  
Indian Institute of Science, Bangalore.
- Inch DR T. NAVANEETH RAO  
Osmania University, Hyderabad.
- Inch DR RAMASWAMY  
Central Leather Research Institute, Madras.
- Inch PROF. O. P. VIG  
Panjab University, Chandigarh.
- Inch PROF. I. P. SARASWAT  
University of Roorkee, Roorkee.

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- March, 1978
- 16.6.1972
- 1.10.1969
- Sept. 1975
- 2.12.1974
- 2.12.1974

## **APPENDIX VI**

### **AGREEMENT ON EXCHANGE/VISITS BETWEEN THE ROYAL SOCIETY OF LONDON AND THE INDIAN NATIONAL SCIENCE ACADEMY, NEW DELHI**

Recognising the mutual benefit of scientific interchange and the convenience of set procedures for its administration the Royal Society and the Indian National Science Academy, hereinafter called the Sides, conclude the following agreement :

#### **Types of Visits**

I. Visits will be arranged annually in each direction for post-doctoral scientists in the natural sciences and technology in two categories :

- (a) Study Visits-usually for short periods, with the aim of visiting a number of laboratories in the host country for discussions and liaison, and
- (b) Fellowship for longer periods of not less than four months, to carry out research project or to learn techniques predominantly in one laboratory, but with provision for short subsidiary visits to others.

#### **Selection and Nomination of Visitors**

II. The sending Side will be responsible for nominating visitors from that country to the host side. However, the host side may ask that named scientists or specific fields should be given priority.

#### **Programme Arrangements**

- III. (a) The sending side may ask the host side to arrange a programme on the basis of the visitor's wishes, or
- (b) the individual prospective visitor may make his programme directly with the laboratories in the host country which he wishes to visit, keeping both sides fully informed of the arrangements made.

#### **Travel**

IV. The sending side will pay for the international fares of its visitors. The host side will pay for local travel connected with the scientific programme in the country concerned, either providing the visitors with pre-paid tickets, or paying the visitor, in advance if possible, for necessary travel or transport for which pre-paid tickets are unavailable.

### **Board and Lodging**

V. The host side will be responsible for arranging board and lodging for the visitor to a suitable standard and for defraying its cost either by direct payment to the hotel or other properties, together with an adequate daily allowance paid in advance to the visitor for meals and incidental expenses, or by paying the visitor in advance, in a lump sum, or at convenient intervals, an allowance or stipend to cover all expenses.

In cases where the visitor wishes to make his own arrangements for board and lodging a suitable allowance or stipend will be paid to enable the visitor to defray the costs or reimburse his hosts.

The detailed provisions for local costs will be kept under constant review and agreed by exchange of letters between the two sides as may be necessary.

VI. Visitors will be exchanged on the basis of equivalent facilities from each side to be agreed annually before 31 March for the ensuing twelve months.

### **Form of Nomination**

VII. Nominations are to include the following details :

1. The category of visit for which the scientist is nominated
2. Full surname, Forenames and Title
3. Date and Place of Birth
4. Short scientific biography
5. Details of degrees and current employment
6. Field of specialization
7. Main scientific publications (to a maximum of six)
8. Knowledge of languages (if applicable)
9. Subject of scientific work (or subjects of lectures)
10. Desired date of visit and length of stay in host country
11. Programme of scientific work agreed with laboratories in host country or specific requests for programme to be arranged by host side. In the latter case, details of scientific centres or the type of institution which it is desired to visit; length of stay in each centre; specific scientists with whom meetings are desired, and the type of questions which the nominee would like to discuss with them.
12. Whether accommodation is to be arranged or whether visitor making own arrangements

13. Anything else desired by the nominee which is not connected with the programme of scientific work.
14. Whether to be accompanied by dependant(s) at the visitor's own expense.

VIII. Nominations under both Article I (a) and I (b) are to be forwarded to the host side in sufficient time for at least three months' notice to be given in each case. The host side is to reply confirming the acceptability of the visitor within one month of receipt of nomination.

Not less than seven days before the start of the visit the sending side is to cable flight or other arrival details.

#### **Medical Treatment**

IX. In the United Kingdom essential medical treatment may be arranged for visitors under the National Health Service, in India British visitors will be covered by medical insurance the premiums for which will be paid by the Royal Society.

#### **Work Permits and Visas**

X. Where necessary the host side will do what it can to facilitate the issue of entry or other permits for incoming visitors.

#### **Validity of agreement**

XI. This agreement will come into force on 1 April 1978. It will be implemented directly between the Royal Society and the Indian National Science Academy. It is open to either side at any time to submit suggestions or recommendations for amendment or modification of the agreement which will not otherwise be subject to regular renegotiation.  
*Done at New Delhi in two copies on twenty-seventh day of March 1978.*

Sd/-

(M. G. P. STOKER)  
*Foreign Secretary and Vice-President*  
 For THE ROYAL SOCIETY  
 OF LONDON

Sd/-

(A. R. VERMA)  
*Foreign Secretary*  
 For THE INDIAN NATIONAL  
 SCIENCE ACADEMY

## Appendix VII

### DELEGATIONS TO ICSU-SPONSORED INTERNATIONAL CONFERENCES/SEMINAR/SYMPOSIA, ETC, DURING THE YEAR 1977-78

S. No.	Name and address of Scientist	Name of the Con- ference and place	Financial support granted by the Academy
1	2	3	4
1.	Dr K. V. S. Rama Rao, Madras.	6th International Symposium on Magnetic Resonance of Banff, Canada, in May 1977	50% travel and other expenses
2.	DR S. K. Poddar, Indian Institute of Science, Bangalore.	-do-	-do-
3.	DR L. C. Gupta, Tata Institute of Fundamental Research, Bombay.	-do-	-do-
4.	R. V. Bramanyam, Madras.	-do-	Nil
	P.T. Manoharan, IIT, Madras	-do-	Nil
6.	DR Anil Kumar	-do-	Per deim for 7 days
7.	DR K. Venkatesan, BARC, Bombay.	-do-	Nil
8.	DR S. R. Kasturi, BARC, Bombay.	-do-	Nil
9.	PROF. T. K. Menon, TIFR, Bombay.	IAU Symposium No. 76 at Ithaca, USA in June 1977	Nil
10.	PROF. P.D. Bhavsar, Space Application Centre, Ahmedabad.	XXth Meeting of COSPAR at Tel-Aviv, Israel, in June 1977	Nil
11.	DR S. K. Alurkar, PRL, Ahmedabad	-do-	50% travel and other expenses

1	2	3	4
12.	DR P. C. Agrawal, TIFR, Bombay.	-do-	-do-
13.	PROF.R.C. Mehrotra Vice-Chancellor Delhi University, Delhi	International Conference on Coordination Chemistry at Sao Paulo, in July 1977	50% travel and full other ex- penses
14.	PROF. R. C. Paul, Vice-Chancellor, Punjab University, Chandigarh.	-do-	He has expressed his inability to participate
15.	DR D. Banerjea, Calcutta University Calcutta.	-do-	50% travel and other expenses
16.	DR H. L. Nigam, Indore University, Indore.	-do-	Nil
17.	SRI L. N. Kailasam, ICG Meetings and Symposia GSI, Calcutta.	Granted travel ex- penses meeting 20-6-1977	
18.	DR P. Krishna, BHU, Varanasi	5th International Congress on Crystal Growth at Boston, USA, in July 1977	Nil
19.	DR D. Pandey, BHU Varanasi	-do-	Nil
20.	DR B.S. Ramakrishna, IISc., Bangalore	International Congress of Acoustics at Madrid, Spain, in July 1977	50% travel and other expenses
21.	DR S. Rajagopalan, Nagpur University, Nagpur.	-do-	Nil
22.	PROF. S. P. Devi, Madras Medical College, Madras.	27th International Congress of Physical Sciences at Pans, France, in July 1977	Nil

1	2	3	4
23.	DR V. Srinivasan, Madurai Medical College, Madurai.	-do-	Nil
24.	DR Jayshree Sengupta, AIIMS, New Delhi.	-do-	50% travel and other expenses
25.	DR A. S. Paintal, V. P. Chest Institute, Delhi.	-do-	-do-
26.	Dr S. Chattopadhyay, BHU, Varanasi.	-do-	-do-
27.	DR B. N. Singh, CFRI, Barrackpore.	27th International Congress on Physical Sciences at Paris, France, in July 1977	50% travel
28.	DR A. K. Maiti, University College of Science, Calcutta.	-do-	Nil
29.	DR J. S. Dutta Munshi, Bhagalpur University, Bhagalpur.	-do-	50% travel only
30.	DR B. I. Sundararaj, Delhi University, Delhi.	-do-	50% travel and other expenses
31.	DR N. D. P. Sinha, Bhagalpur University, Bhagalpur.	-do-	Nil
32.	DR Veluswamy, TIFR, Bombay.	IAU Symp. No. 77 at Muns- terafil, Near Bonn, FRG, in August 1977	50% travel and full other ex- penses
33.	DR K. G. Mukherjee, Delhi University, Delhi.	International Symposium on Microbial Ecology at Dunedin, New Zealand, in August 1977	Nil
34.	DR D. P. Zutshi, Government College, Anantnag, J. K.	XXth Session of internatio- nal Society of Dimonology at Copenhegen, Denmark, in August 1977	Nil

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2

3

4

35.	<b>PROF. C. N. R. Rao,</b> IISc, Bangalore.	29th General Assembly of IUPAC at Warsaw, Poland, in August 1977	Pcr diem for 5 days
36.	<b>PROF. R. C. Kapoor,</b> Jodhpur University, Jodhpur.	-do-	50% travel and other expenses
37.	<b>PROF. S. Ranga- swami, Delhi Univer- sity, Delhi.</b>	26th IUPAC Congress at Tokyo, Japan, in September 1977	Entire expenses
38.	<b>DR S. S. Katiyar,</b> IIT, Kanpur.	-do-	Nil
39.	<b>DR D. Devprabhakara,</b> IIT, Kanpur.	-do-	Nil
40.	<b>DR A.K. Deo,</b> Visva Bharati University, Santiniketan.	-do-	25% travel only
41.	<b>DR S. K. Talpatra,</b> Calcutta University, Calcutta.	-do-	-do-
42.	<b>DR K. M. Sivandiah,</b> Bangalore University, Bangalore.	-do-	Nil
43.	<b>DR R. P. Rastogi,</b> Gorakhpur Univer- sity, Gorakhpur.	5th International Conf. on Chemical Thermodynamics at Ronneby, Sweden, in August 1977	50% travel grant and full other expenses
44.	<b>DR Kiran K. Kundu</b> Jadavpur University, Calcutta.	-do-	Nil
45.	<b>DR K. Venkatesan,</b> IISc., Bangalore.	4th European Crystallo- graphy Meeting at Oxford, in September 1977	50% travel and full other ex- penses
46.	<b>DR S. Ramaseshan,</b> NAL, Bangalore.	-do-	Nil

1	2	3	4
47.	DR H M. Chowdhury, IASPEI/IUGG General Assembly Meeting in Durham, Deptt., New Delhi.	U.K. in August 1977	Nil
48.	DR V. K. Verma, 10th INQUA Congress at Delhi University, Birmingham, in August 1977	50% travel and full other expenses	
49.	DR A. K. Ghosh, Calcutta University Calcutta.	-do-	25% travel only
50.	PROF. A. Rahman CSIR, New Delhi (Leader of the Delegation).	15th International Congress of IUHPS at Edinburgh, U.K. in August, 1977	Nil
51.	DR B. V. Subbarayappa, Executive Secretary, INSA, New Delhi.	-do-	50% travel and incidentals
52.	SRI S. R. Rao, Archaeological Survey of India, Bangalore.	-do-	50% travel and other expenses
53.	DR V. P. Mukherjee, IIT, Kharagpur.	-do-	—do—
54.	PROF. S. M. Ahmad, AMU, Aligarh.	-do-	Nil
55.	DR S. M. Ansari, AMU, Aligarh.	-do-	Nil
56.	DR Kadambari Haravn, Kerala University, Kariavattom.	-do-	Nil
57.	DR S. D. Sharma, Punjab University, Patiala.	-do-	Nil
58.	DR R. C. Gupta, BIT, Ranchi.	-do-	50% travel only

1	2	3	4
59.	DR S. Ramaseshan, Bangalore.	IUCR Executive Meeting at Moscow, USSR in August 1977	incidentals for 10 days only
60.	DR R. S. Mishra, BHU, Varanasi.	8th International conference on General Relativity and Gravitation at Waterloo, Canada, in August 1977	50% travel and other expenses at meeting held on 20.6.77
61.	DR V. B. Johry, Gorakhpur University Gorakhpur.	-do-	Nil
62.	DR S. Mookerjee, Nagpur University, Nagpur.	Meeting of IGU Com- mission at Edinburgh, U.K. in August 1977	Nil
63.	DR S. D. Verma Gujarat University, Gujarat.	15th International Cosmic Ray Conference at Plovdiv, Bulgaria, in August 1977	Nil
64.	SHRI G. P. Srivastva, Observatories, Puna.	2nd Special Assembly of STAMAP at Seattle, USA in September, 1977	Nil
65.	DR R. G. Rastogi, PRL, Ahmedabad.	-do-	50% travel and full other ex- penses
66.	DR P. R. Pisharoty, PRL, Ahmedabad.	-do-	Nil
67.	DR R. Seshamani, IISc., Bangalore.	-do-	Nil
68.	DR B. N. Bhargava, Indian Institute of Geomagnetism, Bombay.	3rd Scientific Assembly at IAGA at Seattle, USA in September 1977	Nil
69.	DR Raja Ram, II Geomagnetism, Bombay.	-do-	Nil
70.	DR P.K. Das, IMD, New Delhi.	-do-	per diem for 4 days

1	2	3	4
71.	DR V. Krishna Kumar, Calicut University, Calicut.	International Conference on Differential equations at Uppsala (Sweden) from April 18-23, 1977	Nil
72.	DR A. P. Mitra, NPL, New Delhi.	3rd General Assembly of IAMAP and 2 Assembly of IAGA at Seattle, USA from 22 August to 3rd Sept. 1977	50% travel and full other expenses
73.	DR D. C. V. Malik, IIA, Bangalore.	IAU Colloquium No. 45 at Torun, Poland, from 7-9 sept. 1977	-do-
74.	DR A. N. Mitra, Delhi University, Delhi.	Intl. Conf. on Nuclear Structure at Tokyo, Japan, from 5-10 September, 1977	50% travel only
75.	DR R. C. Paul, Punjab University, Chandigarh.	Intl. Conf. on Chemical Education at Ljublana, Yugoslavia from 25-30 August 1977	50% travel and other expenses (Prof. Paul however could not go)
76.	DR S. Rangaswami Delhi.	29th General Assembly of IUPAC at Warsaw, Poland, in August 1977	Nil
77.	DR S. C. Joshi, UP State Observatory, Nainital.	IAU colloquim No. 4 at Bamburg, FRG from 6-9 September 1977	50% travel and full other expenses
78.	DR M. Parthasarathy, IIA, Bangalore.	LAU Symp. No. 80 at Washington, USA from 2-5 Nov. 1977	50% travel and full other expenses
79.	DR M. N. Qureshi, DST, New Delhi.	Meeting of IUGS at Hannover, Prague and Prisram in Sept. 1977	Nil
80.	DR J. Ganguly, IISc. Bangalore.	FAOB, Congress at Nagoya, Japan, from 10-12 Sept. 1977	Nil
81.	DR H. R. Cama, IISc, Bangalore.	-do-	Nil

1	2	3	4
82.	DR P. M. Bhargava, PRL, Hyderabad.	-do-	50% travel and full other ex- penses
83.	DR M. R. Raghavendra Rao, CFTRI, Mysore.	-do-	-do-
84.	DR S. Krishnamurthy, IISc., Bangalore.	-do-	-do-
85.	DR A. N. Radhakrisna, Hyderabad University, Hyderabad	-do-	Per diem for 10 days
86.	PROF. P. Krishna, BHU, Varanasi.	Intl. Summer School of Crystallography at Erice, Italy from 5-16 Sept. 1977	Nil
87.	DR T. Bhaskar Rao, IIT, Madras.	-do-	-do-
88.	DR M. P. Tamkar, Allahabad University, Allahabad.	-do-	-do-
89.	DR C. C. Desai, Sardar Patel Univ. Vallabh Vidyanagar.	Intl. Summer School of Crystallography at Erice, Italy from 5-16 Sept. 1977	Nil
90.	DR Govind Singh, BHU, Varanasi.	-do-	-do-
91.	DR G.C. Trigunayat, Delhi University Delhi	-do-	-do-
92.	DR M.R. Chowdhury, Burdwan University Burdwan.	Meeting of IGO Commission at Krakow Poland from 27 Aug. to 4 Sept. 1977	50% travel and full other ex- penses

**Appendix VIII**  
**DELEGATIONS TO NON-ICSU CONFERENCES**  
**DURING 1977-78**

<i>Sl.</i>	<i>Name of the Scientist</i>	<i>Name of the Conference</i>	<i>Financial support given</i>
1.	DR C. V. Subramanian, Madras University, Madras.	2nd Int. Mycological Cong. at Tampa in Aug-Sept. 1977	Nil (Leader of the Delegation)
2.	DR K. S. Thind, Punjab University, Chandigarh.	-do-	Nil
3.	DR Ramesh Meheshwari, Indian Institute of Sc., Bangalore.	-do-	50% travel and other expenses
4.	DR A. K. Sarbhoy, IARI, New Delhi.	-do-	-do-
5.	DR D. D. Asasthy, Lucknow University, Lucknow.	-do-	-do-
6.	DR N. Samajpati, Calcutta University, Calcutta.	-do-	-do-
7.	DR I. Kalyansundaram, Madras University, Madras.	-do-	-do-
8.	DR B. L. Jain, Rajasthan University Jaipur.	-do-	-do-
9.	PROF. R. C. Paul, Vice-Chancellor, Punjab University, Chandigarh	First Int. Congress on Phosphorus Compounds at Rabat, Morocco from 17-22 Oct. 1977	Provisionally entire expenses to be met by the Academy and subsequently to be reimbursed by DST

## Appendix IX

### **LIST OF THE PROJECTS IDENTIFIED FOR SCIENTIFIC COOPERATION & SCIENTIFIC EXCHANGE BETWEEN THE INDIAN NATIONAL SCIENCE ACADEMY AND THE USSR ACADEMY OF SCIENCES**

#### **GEO-SCIENCES**

##### **1. Studies in Geomagnetic and Geoelectric Micropulsations in India**

###### **Participating Institutions**

From Indian side :

1. National Geophysical Research Institute Hyderabad
2. Osmania University, Hyderabad.
3. Indian School of Mines, Dhanbad.

From Soviet side :

1. Institute of Physics of Earth, Moscow.

##### **2. Deep Seismic Sounding Studies**

From Indian side :

1. National Geophysical Res. Instt., Hyderabad.
2. National Instt. of Oceanography, Goa,
3. Oil & Natural Gas Commission, Dehradun.

From Soviet side :

1. Geophysical Institute of the Ukrainian Academy of Sciences, Kiev.
2. Institute of the Physics of the Earth, Moscow.
3. Institute of Oceanology, Moscow.

##### **3. Geothermal Studies**

From Indian side :

1. National Geophysical Res. Instt., Hyderabad,
2. Geological Survey of India, Calcutta.

From Soviet side :

1. Institute of Physics of the Earth Academy of Sciences, Moscow.
2. Geothermal Research Council of the Academy of the Sciences of the USSR, Moscow.

*4. Hydrogeological Studies*

From Indian side :

1. National Geophysical Research Institute, Hyderabad.
2. Indian Meteorological Department, New Delhi.
3. Indian Institute of Technology, Delhi.
4. University of Roorkee, Roorkee.
5. Central Water Commission, New Delhi.
6. Central Ground Water Board, N. Delhi.

From Soviet side :

1. Institute of Water Problems, Moscow.

*5. Radiation and Evolutionary History of Lunar and other Extra-terrestrial Materials*

From Indian side :

1. Physical Res. Lab., Ahmedabad.
2. Indian Instt. of Technology, Kanpur.
3. Tata Instt. of Fundamental Res., Bombay.

From Soviet side :

1. V. I. Vernadsky Institute of Geochemistry, Moscow.

*6. Nuclear Fission and Spallation Processes and their Applications to Astrophysics & Geophysical Problems*

From Indian side :

1. Physical Res. Lab., Ahmedabad.
2. Tata Institute of Fundamental Research, Bombay.

From Soviet side :

1. V. I. Vernadsky Institute of Geochemistry, Moscow.

*PHYSICS*

*7. Plasma Physics, Astrophysical Aspect*

From Indian side :

1. University of Delhi (Dept. of Astrophysics).

From Soviet side :

1. Astronomical Council of the Academy of Sciences of USSR.

*8. Liquid Crystals*

From Indian side :

1. Raman Research Instt., Bangalore.
2. University of Baroda.
3. University of Raipur.
4. National Physical Laboratory.

From Soviet side :

1. Institute of Crystallography, Moscow.
2. Institute for Studies on Large Molecules, Leningrad.

**9. Mechanism of Crystal Growth**

From Indian side :

1. National Physical Lab., New Delhi.

2. Sardar Patel University, Anand.

From Soviet side :

1. Institute of Crystallography, Moscow.

**10. Low temperature Physics**

From Indian side :

1. National Physical Lab., New Delhi.

2. University of Delhi, Delhi.

3. Indian Instt. of Science, Bangalore.

From Soviet side :

1. Vavilov Institute of Physical Problems,  
Moscow,

2. Landau Institute of Theoretical Physics,  
Moscow.

**CHEMISTRY**

**11. Chemistry and Utilisation of Natural Products**

From Indian side :

1. Central Drug Res. Instt., Lucknow.

2. Delhi University, Delhi.

3. Calcutta University, Calcutta.

4. Regional Res. Lab., Jammu.

5. Indian Agricr. Res. Instt., New Delhi.

From Soviet side :

1. Institute for the Chemistry of Plant  
Products, Tashkent.

2. Shemyakin Institute of Bio-organic  
Chemistry, Moscow.

**12. Physico-chemical Studies on Peptides and micro-molecules  
of Biological interest**

From Indian side :

1. Central Drug Res. Instt., Lucknow.

2. Indian Institute of Science, Bangalore.

From Soviet side :

1. Shemyakin Institute of Bio-organic  
Chemistry, Moscow.

**BIOLOGY**

**13. Biological Nitrogen Fixation in soil by (a) Symbiotic and (b) Non-symbiotic processes**

From Indian side :

1. Bose Institute, Calcutta.

2. Tamil Nadu Agricultural University,  
Coimbatore,

3. Indian Agricultural Research Institute,  
New Delhi.

From Soviet side :

1. Institute of Microbiology, Moscow.

***14. Genetics and Selection of Cultural Plants***

From Indian side :

1. University of Delhi, Delhi.
2. Indian Agricultural Res. Instt., New Delhi.
3. Agricultural University, Pantnagar.

From Soviet side :

1. Institute of Cytology and Genetics, Novisibirsk.
2. Institute of General Genetics, Moscow.
3. Institute of Genetics and Cytology, Academy of Sciences of Bylo-Russian Republic, Minsk.

***15. Studies in Taphonomy***

From Indian side :

1. Birbal Sahni Institute of Palaeobotany, Lucknow.

From Soviet side :

1. Komarov Botanical Institute, Leningrad.

***MATHEMATICS******16. Statistics and Probability Theory***

From Indian side :

1. University of Poona, Pune,
2. Indian Statistical Institute, New Delhi & Calcutta.

From Soviet side :

1. Steklov Institute of Mathematics, Moscow & Leningrad

***DISSEMINATION OF SCIENCE******17. Russian Science Information Centre***

From Indian side :

1. Indian National Scientific Documentation Centre, New Delhi.

From Soviet side :

1. All-Union Institute for Scientific and Technical Information (VINITI), Moscow.

## APPENDIX X

### **PUBLICATION GRANT TO THE SCIENTIFIC SOCIETIES**

Publication Grants Given to the Scientific Societies during 1977-78 are as given under:

S. No.	Name of the Society	Amount (Rs.)
1.	The Asiatic Society, Calcutta	3500/-
2.	Bombay Natural History Society, Bombay	3000/-
3.	Current Science Association, Bangalore	3500/-
4.	Calcutta Mathematical Society, Calcutta	1000/-
5.	The Entomological Society of India, New Delhi	1000/-
6.	The Geological Society of India, Bangalore	1000/-
7.	Indian Science News Association, Calcutta	3000/-
8.	Indian Science Congress Association, Calcutta	3000/-
9.	Indian Chemical Society, Calcutta	3000/-
10.	The Indian Society of Genetics & Plant Breedings, New Delhi	3000/-
11.	The Indian Society of Agronomy, New Delhi	2000/-
12.	National Academy of Sciences, Allahabad	3000/-
13.	Astronomical Society of India, Hyderabad	3000/-
14.	Acoustical Society of India, New Delhi	3000/-
Total		36,000/-



ACCOUNTS OF THE  
INDIAN NATIONAL SCIENCE ACADEMY  
**1977-78**



## AUDITOR'S REPORT

We have audited the annexed Balance Sheet of the Indian National Science Academy as at 31st March, 1978 and also the relevant Income & Expenditure Account and Receipts & Payments Accounts of the Academy for the year ended on that date with the help of books of account and vouchers relating thereto.

We report that to the best of our information and according to the explanations given to us, in our opinion, the Balance Sheet read with notes thereon, shows a true and correct state of affairs of the Academy and the Income & Expenditure Account gives a true and fair view of the excess of Expenditure over Income of the Academy subject to the following :

1. Grant-in-aid received by the Academy for the 21st international Geographical Congress and the assets acquired out of that grant have not been shown in the annexed Balance Sheet and Income & Expenditure Account of the Academy as the separate accounts have been prepared for the same.

12, Bhagat Singh Marg,  
NEW DELHI-110 001.  
Dated 13 NOV. 1978.

For LODHA & COMPANY  
*Chartered Accountants*  
Sd/- P. K. JAIN  
*Partner.*

## BALANCE SHEET AS ON 31st MARCH 1978

LIABILITIES	Amount Rs.	Amount Rs.	ASSETS	Amount Rs.	Amount Rs.
<i>Funds (As per schedule 'A')</i>		16,67,684.41	<i>Fixed Assets</i>		
<i>Employees Provident Fund</i>			<i>Building and Equipment</i> (As per schedule 'D')		11,80,522.99
(As per last balance sheet) including 50% D.A. Arrears.	4,77,578.11		<i>Furniture Fixture &amp; Equipment's</i> With Project Leader and in Office (As per schedule 'E')		4,93,776.53
<i>Add: Academy's contribution to C.P.F.</i>	31,119.00		<i>Furniture, Fixture &amp; Equipment</i> (As per schedule 'F')		3,31,669.59
Interest	17,333.00		<i>Books &amp; Journals</i> (As per Schedule 'G')		20,39,774.12
Staff Subscription to C.P.F.	40,280.00		<i>Investments</i> (As per Schedule 'H')		6,57,745.24
Interest	11,801.60		<i>Other Deposits:</i>		
D.A. Arrears	248.15		Cash in hand and at Bank (As per Schedule 'I') (S. Ramnujam medals 1966 and 1968)	4,96,699.43	1,545.90
		5,78,359.86	Gold Medals in hand Gold with Mint at Calcutta (15.36 grams)	4,105.51	5,02,350.84
<i>Less: Final payments</i>	46,639.08				
		5,31,720.78			
		7,26,257.88			
<i>Funds against Govt. grants</i>					
Building grant fund as per last balance sheet					
<i>New Block Furnishing grant fund</i>					
As per last balance Sheet	48,954.80				
<i>Library Grant Fund</i>					
As per last balance sheet	6,15,015.92				

<i>Advances</i>		1,36,833.89
	(As per schedule 'J')	
<i>Loans to Staff against Provident Fund</i>		1,01,445.00
<i>Compounding Fee Funds</i>		
As per last balance sheet	71,682.00	
Addition during the year	4,356.00	
	<u>76,038.00</u>	
<i>Capitalised Expenditure Account</i>		
(As per Schedule 'B')		
<i>Other Liabilities</i>		
(As per schedule 'C')		
<i>Income and Expenditure Account</i>		
Unspent balance of last year	9,23,835.36	
as per Schedule 'K'		
<i>Less:</i> Deficit as per Income	2,49,774.23	
and Expenditure A/c.		
	<u>6,74,061.13</u>	
<i>Fellowship Subscription Outstanding</i>		2,522.35
<i>Less Transferred to</i>		
<i>Capitalised Account</i>		
Non-Recurring	1,82,072.49	
<i>Transferred to</i>		
<i>General Fund</i>	<u>41,476.23</u>	<u>2,23,548.72</u>
	4,50,512.41	
<i>Less:</i> Overspent of Science		4,46,999.77
Policy Unit	<u>3,512.64</u>	
		<u>54,63,745.55</u>
	C/F	<u>54,63,745.55</u>

LIABILITIES	Amount Rs.	Amount Rs.	ASSETS	Amount Rs.	Amount Rs.
B/F	54,63,745.55		B/F		54,63,745.55
<i>Compulsory Deposit</i>					
Amount from Regional Provident Fund Commissioner					
(2nd Instalment)	26,372.51				
<i>Less: Repayment of 2nd instalment of impounded</i>	<u>26,372.51</u>	—			
Total		<u>54,63,745.55</u>			
			Total	<u>54,63,745.55</u>	

- Notes:* 1. Stock of publications of the Academy as on 31st March, 1978 has not been included in the Balance Sheet, whereas the same is the Property of the Academy.  
 2. No depreciation has been provided on Fixed Assets.

Subject to our report of even date

for Lodha & Company  
*Chartered Accountants*  
 Sd./-P. K. JAIN  
*Partner*  
 12, Bhagat Singh Marg,  
 New Delhi-110001.  
 Dated: 13 Nov. 1978

Sd./-S. K. DASGUPTA  
*Executive Secretary*

**INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 1978**

EXPENDITURE	Amount Rs.	INCOME	Amount Rs.
Normal Activities	14,81,985.19	<i>Govt. Grant-in-aid</i> (As per Schedule 'K').	40,54,318.75
ICSU Activities	11,44,416.56	<i>Other Receipts</i>	1,19,303.18
Summer Schools	96,123.12	Normal Activities	12,463.55
Award for Young Scientists	31,324.84	ICSU Activities	51,310.24
Scientific Research & Research Training	12,49,103.14	Summer Schools	—
History of Science	1,35,090.84	Award for Young Scientists	86,580.00
Indo-Soviet Collaboration	2,30,808.03	Scientific Research & Research Training	3,007.16
Exchange of Scientists	1,96,506.37	History of Science	103.70
Non-Recurring Expenditure	43,433.20	Indo-Soviet Collaboration	1,580.00
General Fund	331.53	Exchange of Scientists	—
Documentation & Publication	6,479.54	Non-Recurring Expenditure	45,320.40
Popularisation of Science	8,158.85	General Fund	2,49,774.23
		Excess of Expenditure over income	<u>46,23,761.21</u>
		Total	<u>46,23,761.21</u>

*for LODHA & CO.  
Chartered Accountants  
Sd./- P. K. JAIN  
Partner*

12, Bhagat Singh Marg,  
New Delhi-110001.  
Dated: 13th Nov. 1978

*Sd./- S. K. DASGUPTA  
Executive Secretary*

**RECEIPTS & PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 1978**

**Govt. Grant-in-Aid, Recurring Normal Activities**

RECEIPTS	Amount Rs.	PAYMENTS	Amount Rs.	Amount Rs.
Unspent balance from last year	72,262.01	Staff Salaries & Medical Allowance	5,24,071.83	
		P.F. Contribution	<u>21,912.00</u>	
			<u>5,45,983.83</u>	
Unspent balance of work shop on Water in Man's Life in India	23,072.51	<i>Less:</i> Leave salary contribution by DR. B.V. Subbarayappa	1,217.00	5,44,766.83
Unspent balance IUPAC Symposium	47,473.86			
Unspent balance International Biological Programme	14,009.09	L.T.C. & Children Educational Assistance	4,317.22	
Govt. grant-in-aid received during the year	<u>12,50,000.00</u>	Travelling Expenses (Meeting of the Council, Sectional Committees, Medal Committees etc.)		1,48,747.16
	<u>14,06,817.47</u>			

Sd./-S. K. DASGUPTA  
Executive Secretary

<i>Other Receipts:</i>			
(i) Sale of Publications	78,725.94		
(ii) Interest on C.P.F.			
Investments & Saving Bank Account	35,413.49		
(iii) Subscription of IJPAM	—		
(iv) Subscription of Proceedings	—		
Sale of Greeting Cards	—		
(v) Interest on Cycle Advance	113.50		
(vi) House Rent Recovery	506.95		
(vii) Token grant from Universities	500.00		
(ix) Miscellaneous Receipts	4,043.30		
		1,19,303.18	
Total	15,26,120.65		
Unspent balance		14,81,985.19	
		44,135.46	
Total	15,26,120.65		

for LODHA & Co.,  
Chartered Accountants  
Sd./- P. K. JAIN  
Partner

12, Bhagat Singh Marg,  
New Delhi-110001.  
Dated : 13 Nov. 1978

**ANNEXURE 'A'**  
**Symposia of the Academy**

	<i>Amount (Rs.)</i>
1. Remote Sensing for Hydrology, Agriculture and Mineral Resources, Ahmedabad	10,000.00
2. Photosynthesis & Productivity, New Delhi	7,299.18
3. Geometry and Relativity 72-73	600.00
4. Optical Behaviour of Strides 71-72	500.00
	<hr/>
	18,399.18
By Excess amount adjusted in connection with Symp. on Agro-based Industries	<hr/> — 837.00
	<hr/>
Total	17,562.18
	<hr/>

*for LODHA & CO.,*  
*Chartered Accountants*  
 12, Bhagat Singh Marg,  
 New Delhi-110001.  
 Dated: 13 Nov. 1978              Sd/- P. K. JAIN      Sd/- S. K. DASGUPTA  
*Partner*                            *Executive Secretary*

## **ANNEXURE 'B'**

### **Support of Symposia**

	<i>Amount (Rs)</i>
1. Vth International Wheat Genetics, New Delhi (Dr. M. V. Rao)	5,000.00
2. International fermentation R.R.L., Jammu (Dr. C. L. Chopra)	5,000.00
3. Modern Trends in Taxonomy, Lucknow.	3,000.00
4. Earthquake Engineering (Dr. Jai Krishna)	3,000.00
5. Ecology and Conservation of Birds and Mammals in India, Bangalore	3,000.00
6. Environmental Pollution and Toxicology, Hissar	3,000.00
7. Enzymatic Conversion of Cellulosic Substance of Chemical Energy and Microbial Protein, New Delhi	3,000.00
8. IIInd National Conference of the Federation of Endocrinology Societies of India, Lucknow	5,000.00
9. Clinical Pharmacology for Tropical Diseases & Membrane bound Receptors, Calcutta	5,000.00
10. Some Problems of Weeds in Meghalaya Region	3,500.00
	<b>Total</b>
	<b>38,500.00</b>

*for LODHA & CO.,*  
**12, Bhagat Singh Marg, Chartered Accountants**  
**New Delhi-110001. Sd/- P. K. JAIN Sd/- S. K. DASGUPTA**  
**Dated: 13 Nov. 1978 Partner Executive Secretary**

## ANNEXURE 'C'

<i>Particulars</i>	<i>(Amount Rs.)</i>
1. Scavenging Charges	6,905.00
2. House Tax	39,710.50
3. Ground Rent	12,596.69
4. Postage expenses (Delhi & Calcutta Office)	68,709.10
5. Telephones, Trunk Calls & Phonograms	29,101.75
6. Telephone Expenses: Office Bearers B. S.	6,602.80
7. Printing & Stationery	22,960.80
8. Electricity & Water charges	40,242.05
9. Local Conveyance	7,359.00
10. Advertisement (Recruitment Staff)	5,012.45
11. Maintenance Lawns & Gardens	6,250.75
12. Maintenance of Building	16,651.84
13. Uniform to Class IV employees	7,354.18
14. Payment to Daily-waged Staff	5,942.95
15. Meeting Expenses	6,693.44
16. Repairs & Maintenance of Machines	7,834.84
17. Secretarial Assistance	1,923.10
18. Consumable Stores	3,964.76
19. Audit Fee	1,000.00
20. Misc & Unforeseen Expenses	2,592.20
21. Reception to Delegates	1,063.66
22. Book Binding Charges	2,116.05
23. Electrical Goods	1,300.35
24. Bank Charges	470.40
25. Cooler Hire Charges	5,000.00
26. Expenses on local chapters	1,743.82
27. Honorarium to staff	500.00
28. Staff Welfare	250.00
	<hr/>
	Total
	3,11,852.48
	<hr/>

*for LODHA & CO.*

12, Bhagat Singh Marg, *Chartered Accountants*

New Delhi-110001

Sd/- P. K. JAIN

Sd/- S. K. DASGUPTA

Dated: 13 Nov. 1978

Partner

*Executive Secretary*

**RECEIPTS & PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH 1978**  
**ICSU ACTIVITIES**

RECEIPTS	Amount Rs.	PAYMENTS	Amount Rs.
Unspent balance from last year grants under ICSU activities	51,103.80	Staff Salaries & Medical Allowance	15,056.85
Subscription to ICSU (1976)	3,26,229.00	P. F. Contribution	546.00
	<hr/>		<hr/>
	3,77,332.80	Travelling Secretarial Assistance	15,602.85
	<hr/>	Contingencies including Ptg., Sty., Telephones/Trunk Calls etc.	95,079.05
	<hr/>	Publication of Reports Scientific Delegations: Expenditure	2,877.00
	<hr/>	i) For the Current Year (Annexure D-I)	9,140.65
	<hr/>	ii) For the Previous Year (Annexure D-II)	2,65,455.26
	<hr/>		41,195.25
	<hr/>		<hr/>
	<hr/>	<i>International Symposia &amp; Seminars</i>	<i>3,06,650.51</i>
	<hr/>	i) International Conference on Frontiers of Theoretical Physics"	<hr/>
	<hr/>	C/F	<hr/>
	<hr/>	44,181.52	<hr/>
	<hr/>	C/F	<hr/>
	<hr/>	11,44,416.56	<hr/>

RECEIPTS	Amount Rs.	Amount Rs.	PAYMENTS	Amount Rs.	Amount Rs.
B/F	11,44,416.56				4,29,593.06
			ii) IUBS General Assembly 168.00		
			iii) Regional Conference on “Integrated Curriculum in Mathematics” 5,000.00		49,349.52
			<i>Subscription to ICSU:</i>		
			Year 1976 3,11,995.29		
			Year 1977 3,53,478.69		6,65,473.98
			Total 11,44,416.56		11,44,416.56

12, Bhagat Singh Marg  
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for LODHA & CO.  
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Partner

Sd/- S. K. DASGUPTA  
*Executive Secretary*

**ANNEXURE D (I)**  
*Expenditure on Scientific Delegations During 1977-78*

S. No.	Name of the Conference	Name of the Delegate	Amount Paid (Rs.)	Total Amount (Rs.)
1.	15th International Congress of History of Science at Edinburgh U.K. from 10-19, August, 1977.	Dr B. V. Subbarayappa Dr S. R. Rao Dr V. P. Mukherjee Dr R. C. Gupta	6,292.00 11,229.12 8,895.00 <u>4,393.50</u>	30,809.62
		Prof. A. N. Mitra		5,250.00
2.	International Conference on Nuclear Structure at Tokyo, Japan from 5-10th Sep. 1977.	Dr P. Banerjee Dr R. C. Mehrotra	16,822.00 <u>10,758.00</u>	27,580.00
3.	18th International Conference on Coordination Chemistry at Sao Paule, Brazil from 18-23 July, 1977.	Dr K. Venkatesan		7,147.82
4.	4th European Crystallography Meeting at Oxford from 30th Aug. to 3rd Sep. 1977.	Dr S. K. Poddar Dr Anil Kumar Dr L. C Gupta Dr K. V. S. Rama Rao		7,395.50 3,437.00 6,522.00 6,881.00
5.	International Symposium on Magnetic Resonance at Canada from 21-27th May, 1977.			24,235.50

*for LODHA & Co.,  
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 Executive Secretary*

S. No.	Name of the Conference	Name of the Delegate	Amount Paid (Rs.)	Total Amount (Rs.)
6.	26th Congress of IUPAC at Tokyo from 4-10th Sep. 1977.	Dr K. M. Sivanandiah Prof. S. Rangaswami Dr A. K. De	9,463.00 16,448.00 <hr/> 7,109.45	33,020.45
7.	29th General Assembly of IUPAC at Warsaw, Poland from 12-21 Aug. 1977. Poland from 27th Aug. to 4th Sep. 1977.	Prof. C. N. Rao Dr R. C. Kapoor	1,316.00 <hr/> 8,439.00	9,755.00
8.	Meeting of the IGU Commission on Industrial System at Karakow, Poland.	Prof. M. R. Chaudhuri		8,463.00
9.	10th INQUA Congress at Birmingham, U.K. from 16-24th Aug. 1977.	Dr A. K. Ghosh		3,134.00
10.	3rd IACA General Assembly and 2nd DAMAP Assembly at Seattle (USA) from 22nd Aug. to 3rd Sept. 1977.	Dr A. P. Mitra Dr R. G. Rastogi	11,804.89 <hr/> 10,739.00	22,543.89
11.	27th International Congress of Physiological Sciences of Paris, France, from 18-23th July, 1977.	Dr (Miss) J. Sengupta		11,814.00
12.	27th International Congress of Physiological Sciences, Paris, France from 18-23 July 1977.	Dr A. S. Paintal	10,547.00 <hr/> 7,291.00	17,838.00

13. FAOB Conference at Nagoya, Japan from 11-12 Oct. 1977.	Dr M. R. R. Rao Dr S. Krishnamurthy Dr A. N. Radhakrishna Dr L. N. Kailasam	6,545.00 6,621.53 <u>3,530.00</u> 6,402.00
14. International Symposium on Recent Crystal Movement California, from 25-30th July.	Dr S. C. Joshi Dr S. K. Alurkar	7,493.65 8,053.00
15. IAU Colloquim No. 42 at Bimberg FRG, from 6-9th Sep. 1977	Prof. P. D. Bhavasar	10,330.00
16. XX COSPAR Meeting and asso- ciated Symposia at Tel Aviv Israel from 7-18th June, 1977.	Dr S. B. Ramakrishna	8,452.80
17. International Congress on Acoustics at Madrid, Spain from 4-9th July 1977.	Dr D. C. V. Malik	<u>6,436.00</u>
18. IAU Colloquim No. 45 on Chemical and Dynamical Evolution of Galaxy at Forum Poland from 7-9th Sep. 1977.	Total	<u>2,65,455.26</u>

for LODHA & CO.  
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*Partner*

12, Bhagat Singh Marg,  
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Sd./- S. K. DASGUPTA  
*Executive Secretary*

## ANNEXURE 'D' (II)

### *Expenditure on Scientific Delegations During the Previous Years*

	<i>Amount (Rs.)</i>
Dr R. Chindambaram	1,404.00
Dr N. Ahmed	1,365.00
Dr N. R. Moudgal	6,045.00
Dr S. Ramachandran	15,251.00
Prof. U. Aswatha-Narayna	1,665.75
Dr M. K. Pal	4,632.50
Dr S. M. Chitre	5,792.00
Dr M. P. Thakore	5,040.00
Total	41,195.25

*for LODHA & CO.*

12, Bhagat Singh Marg,      *Chartered Accountants*  
New Delhi-110001              Sd./- P. K. JAIN      Sd./ S. K. DASGUPTA  
Dated: 13 Nov. 1978              *Partner*              *Executive Secretary*

**RECEIPTS & PAYMENTS ACCOUNT FOR THE YEAR ENDED 31st MARCH 1978**  
**SUMMER SCHOOLS**

RECEIPTS	Amount Rs.	PAYMENTS	Amount Rs.
Unspent balance from last year	13,409.98	(I) (a) Expenditure on Winter School on Non-human Primates in Bio-Medical Research	66,429.80
Govt. Grant-in-aid during the year	48,000.00	(b) Expenditure on Summer School on Non-Aqueus	5,519.89
	61,409.98		71,949.69
		<i>Expenditure for Previous years</i>	
		(a) Expenditure on Winter School on Rajasthan Desert	604.50
		(b) Expenditure on Forensic Sciences	568.93
			1,173.43
		<i>II) (a) Summer School on Recent Advances in Physiology of Crop Production</i>	
		(b) Workshop on Physics	3,000.00
		(c) Education	5,000.00
		Symposium on Space Science	
			23,000.00
		<i>Unspent Balance</i>	
Total		1,12,720.22	

*for LODHA & CO.  
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12, Bhagat Singh Marg,  
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Dated : 13 Nov. 1978

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Sd./- S. K. DASGUPTA  
Executive Secretary

**RECEIPTS & PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH 1978**

DOCUMENTATION & PUBLICATION

RECEIPTS	Amount Rs.	PAYMENTS	Amount Rs.	Amount Rs.
Govt. Grant-in-aid during the year				
	10,000.00	Cost of Materials for Photostat Machine		6,479.54
		Unspent Balance		3,520.46
			Total	10,000.00
<b>POPULARISATION OF SCIENCE</b>				
Unspent balance from last year				
	20,231.67	Expenditure on Popular Lectures		652.55
		Expenditure of Local Chapter, Calcutta		,2,506.30
		Grant for Research Project on "Radio Astronomy",		
		Unspent Balance		
			Total	20,231.67

12, Bhagat Singh Marg,  
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*for Lodha & Company  
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Sd./-P. K. JAIN  
Partner*

Sd./-S. K. DASGUPTA  
*Executive Secretary*

**RECEIPTS & PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 1978**

## AWARD FOR YOUNG SCIENTISTS

AWARD FOR YOUNG SCIENTISTS		RECEIPTS Amount Rs.	PAYMENTS Amount Rs.	Amount Rs.	Amount Rs.
Govt. grant-in-aid during the year		25,000.00	Cash Prizes to Young Scientists Contingent expenditure on lecture preparation by Young Scientists	14,000.00 7,000.00	21,000.00
6,324.84	<i>Others</i>				
			Cost of Medals	2,793.15	
			Advertisements	2,460.00	
			T.A./D.A. to Young Scientists	5,071.69	<u>10,324.84</u>
Overspent Balance	Total				31,324.84

for LODHA & CO.  
*Chartered Accountant*  
Sd./-P. K. JAIN  
*Partner*

112, Bhagat Singh Marg,  
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Dated : 13 Nov. 1978

**RECEIPTS & PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 1978**  
**BASIC SCIENCES RESEARCH & RESEARCH TRAINING**

RECEIPTS	Amount Rs.	Amount Rs.	PAYMENTS	Amount Rs.	Amount Rs.
Unspent balance from last year	2,73,204.83		Staff Salaries & Med. Allowance	73,371.25	
Govt. grant-in-aid during the year	10,50,000.00		P. F. Contribution	<u>3,315.00</u>	76,686.25
		13,23,204.83	Travelling	11,790.92	
<i>Others Receipts</i>			Contingencies including Printing & Stationery, telephone expenses Cooler hire charges, Bank Charges etc.		
Monsoon Dynamics					
(a) Amount received from IUTAM	\$ 6000	51,948.00			
(b) Amount received from IUGG	\$ 4000	34,632.00			
			<i>Expenditure on Projects</i>		
			Grant-in-aid to Institutions (Annexure E)	9,83,172.35	
			<i>Symposia &amp; Seminar</i>		
			(a) Symposium on Recombinant DNA Molecules	2,575.50	
			(b) Workshop on Human Genetics	8,000.00	
			(c) Symposium on Biostructure (I. I. T. Madras)	30,000.00	
			(d) Symposium on Monsoon Dynamics	<u>1,18,200.00</u>	<u>1,58,775.50</u>
			Unspent Balance	12,49,103.14	
				<u>1,60,681.69</u>	
			Total	14,09,784.83	14,09,784.83

for LODHA & CO.  
*Chartered Accountants*  
Sd./-P. K. JAIN  
*Partner*

12, Bhagat Singh Marg,  
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Dated : 13 Nov. 1978

**ANNEXURE 'E'**

**Details of the Grant-in-aid released during 1977-78 under the Basic Sciences**

S.No.	Name of the Institution	Name of the Project Leader	Amount Rs.
1.	Indian Institute of Sciences, Bangalore.	Dr S. N. Balasubramanyam	10,000.00
2.	University of Roorkee, Roorkee	Dr I. P. Saraswas	20,000.00
3.	Indian Institute of Sciences, Bangalore.	Dr K. P. Sinha	17,879.99
4.	All India Institute of Medical Sciences, New Delhi.	Dr M. G. Deo	81,060.00
5.	JIPMER, Pondicherry	Dr A. L. Arora	8,239.58
6.	Indian Institute of Science, Bangalore	Dr N. R. Moudgal	25,700.33
7.	All India Institute of Medical Sciences, New Delhi	Dr T. C. Anand Kumar	27,000.00
8.	Indian Institute of Technology, Kanpur	Dr P. Venkateswarlu	52,785.92
9.	Central Leather Research Institute, Madras.	Dr D. Ramaswamy	4,289.16
10.	Indian Institute of Sciences, Bangalore	Dr S. K. Podder	40,378.82
11.	University of Delhi, Delhi	Dr K. Vasudeva Rao	36,690.11
12.	G.B. Pant, University of Agr. Tech., Nainital	Dr B. M. Sahni	5,000.00
13.	Panjab University, Chandigarh	Dr R. C. Paul	11,179.67
14.	Indian Institute of Technology, Kanpur	Dr P. S. Goel	15,533.65
15.	Poona University, Poona	Dr K. Sathianandan	20,000.00
16.	Indian Institute of Technology, Madras	Dr M. Mukunda Rao	13,000.00
17.	All India Institute of Medical Sciences, New Delhi	Dr L. K. Bhutany	36,045.00
18.	Medical College, Indore	Dr N. K. Sethi	16,000.00
19.	Medical College, Trivandrum	Dr P. A. Sarojani	16,000.00
20.	University of Calcutta, Calcutta	Dr A. K. Sharma	38,800.00
21.	Indian Institute of Tropical Meteorology, Poona	Dr R. Ananthakrishnan	2,483.25
22.	Indian Institute of Science, Bangalore	Dr M-Shankar Rao	9,857.67
		C/F	<u>5,07,923.15</u>

S. No.	Name of the Institution	Name of the Project Leader	Amount Rs.
23.	University of Allahabad, Allahabad	Dr U. S. Srivastava	5,07,923.15
24.	University of Udaipur, Udaipur	Dr G. V. Bakure	40,504.00
25.	Indian Institute of Technology, Madras	Dr J. C. Kuriacose	14,600.00
26.	Presidency College, Calcutta	Professor A. K. Saha	17,624.80
27.	Nagpur University, Nagpur	Dr A. S. Khalatkar	15,803.54
28.	Banaras Hindu University, Varanasi	Dr Shamsuddin & Dr Shamin Haider	5,000.00
29.	Panjab Agricultural University, Ludhiana	Dr N. C. Bhattacharya	1,163.00
30.	Department of Mines & Geology, Bangalore	Dr C. S. Pichamuthu	44,398.10
31.	All India Institute of Medical Sciences, New Delhi	Dr T. N. Chapekar	20,700.00
32.	Jadavpur University, Calcutta	Dr (Mrs.) Manju Ray	12,558.24
33.	Banaras Hindu University, Varanasi	Dr S. C. Lakhotia	2,500.00
34.	I. I. T. Kharagpur	Dr R. S. Nanda & Professor A. S. Gupta	7,500.00
35.	I. I. T. Kanpur	Dr R. K. Jain	3,750.00
36.	Regional Engg. College, Surat	Dr A. P. Verma	12,223.88
37.	Karnataka Reg. Engg. College, Surat.	Dr M. N. Channabasappa & Dr G. Ranganna	14,647.00
38.	Bangalore University, Bangalore	Dr N. Rudriah & Dr B. C. Chandrasekhar	36,450.00
39.	I. I. S., Bangalore	Dr R. Narasimha	10,000.00
40.	The Lucknow University, Lucknow	Dr A. R. Bhattacharya	5,000.00
41.	Calcutta University, Calcutta	Dr (Mrs.) J. Banerjee	5,000.00
42.	Panjab Agril. University, Ludhiana	Dr V. V. S. Tyagi	5,000.00
43.	Utkal University, Bhubanshwar	Dr (Mrs.) P. Mohapatra	5,000.00
44.	Delhi University, Delhi	Dr R. N. Kapoor	41,600.00
45.	Madurai University, Madras	Dr J. Jayaraman	33,010.00

16,590.00	
24,075.00	
14,600.00	
12,388.13	
17,438.88	
24,200.00	
24,075.00	
5,000.00	
376.14	
	<u>10,09,656.96</u>

46. Jawahar Lal Nehru University, Delhi	Dr K. C. Upadhyaya
47. I. I. S., Bangalore	Dr G. P. Padmanabhan
48. University of Gorakhpur, Gorakhpur	Dr S. C. Tripathi
49. Indian Institute of Science, Bangalore	Dr G. Suryanarayanan
50. Birla Institute of Technology and Science, Pilani	Dr K. P. Srivastava & Dr Rup Dutta
51. I.I.T. Kharagpur	Dr S. V. L. N. Rao
52. Indian Institute of Sci. Bangalore	Dr T. Ramasarma
53. Central Drug Research Institute, Lucknow	Dr Atteq Ahmed
54. Delhi University, Delhi	Dr V. S. Nanda

*Less: Amount refunded by the following Institution:*

1. Indian Institute of Science, Bangalore	—	100.00	
2. Bose Institute, Calcutta	Dr P. Nandi	3,630.42	
3. Delhi University, Delhi	Dr V. V. S. Murti	168.52	
4. Indian Institute of Technology, New Delhi	—	164.00	
5. Indian Institute of Technology, Kanpur	Dr S. V. L. N. Rao	17,250.00	
6. Panjab Agril. University, Ludhiana	—	710.00	
7. Panjab University, Chandigarh	Dr B. S. Tewari	4,461.67	
		—26,484.61	
			Total      9,83,172.35

*for LODHA & CO.*  
*Chartered Accountants*  
 Sd./-S. K. DASGUPTA  
*Executive Secretary*  
 Sd./-P. K. JAIN  
*Partner*  
 12, Bhagat Singh,  
 New Delhi-110001.  
 Dated : 13 Nov. 1978

## ANNEXURE 'F'

### Basic Sciences

#### List of Advances as on 31-3-1978

S. No.	Particulars	Amount (Rs.)
1.	Dr. P. K. Abubaker	0.45
2.	Dr. K. G. Adiyodi	200.00
3.	Alakhananda Project	4,000.00
4.	Sh. Shrihari Agarwal	10.00
5.	Dr. D. D. Aggarwal	24.26
6.	Dr. P. N. Bahaduri	200.00
7.	Dr. S. K. Banerjee	200.00
8.	Dr. K. K. Balasubramanyam	200.00
9.	Dr. V. B. Bhanot	1,200.00
10.	Dr. S. R. K. Chopra	176.14
11.	Dr. L. N. Chaturvedy	164.89
12.	Dr. P. S. Chakravorty	1,400.00
13.	Dr. S. Deb	734.34
14.	Dr. H. K. Das	453.10
15.	Dr. M. L. Dhar	1,400.00
16.	Dr. L. N. Dass	600.00
17.	Dr. H. L. Dhrah	200.00
18.	Dr. A. C. Gaur	50.00
19.	Dr. J. S. Grewal	200.00
20.	Dr. V. K. Gaur	3,039.75
21.	Dr. R. D. Iyer	1,800.00
22.	Dr. Virendra Kumar	7,000.00
23.	Dr. D. Krishnamurthy	313.84
24.	Dr. B. C. Kundu	500.00
25.	Dr. Ashok Kumar	600.00
26.	Dr. G. S. Mishra	0.45
27.	Dr. S. K Mukherjee	156.98
28.	Dr. B. R. Murthy	2,250.00
29.	Dr. L. P. Mall	699.66
30.	Dr. S. P. Mushran	100.00
31.	Dr. V. S. Nanda	118.50
32.	Dr. M. S. Naid <u>u</u>	500.00

33. Dr. R. Pant	199.99
34. Dr. N. K. Panikkar	317.53
35. Dr. Ravi Prakash	9.85
36. Dr. H. Polasa	186.13
37. Dr. R. V. Gopala Rao	1,200.00
38. Dr. B. M. Reddy	200.00
39. Dr. S. P. Raychaudhuri	1,508.00
40. Dr. S. R. V. Raw	2,639.29
41. Dr. Bijon Roy	200.00
42. Dr. L. R. Raw	500.00
43. Prof. T. R. Seshadri	35.59
44. Dr. S. K. Sinha	1,605.00
45. Dr. T. J. Singh	200.00
46. Dr. Surjit Singh	500.00
47. Dr. P. M. Sood	200.00
48. Dr. J. N. Singh	200.00
49. Dr. B. I. Sunderaraj	1.64
50. Prof. K. N. Saxena	0.90
51. Dr. Y. D. Tiagi	200.00
52. Dr. P. Venkateswarlu	0.10
53. Dr. J. P. Verma	0.10
54. Dr. G. S. Venkataraman	28.48
55. Dr. V. V. S. Murthy	1,500.00
56. Dr. R. Vishwanathan	9,500.00
	49,424.96

## LESS CREDITS :

1. Dr. M. Manohar	147.09
2. Dr. N. N. Pillai	0.02
3. Dr. N. S. Subbarao	1.75
4. Dr. S. Subramanyam	0.43
5. Dr. V. K. Gupta	220.50
6. Dr. A. K. Sarbhoy	56.80
7. Dr. B. S. Tewari	19.39
	445.98
Total	48,978.98

for LODHA &amp; CO.,

Chartered Accountants

Sd/- P. K. JAIN

Partner

Sd/- S. K. DASGUPTA

Executive Secretary

12, Bhagat Singh Marg,  
New Delhi-110001.  
Dated: 13 Nov. 1978

**RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 1978**  
**HISTORY OF SCIENCES IN INDIA**

RECEIPTS	Amount Rs.	Amount Rs.	PAYMENTS	Amount Rs.	Total Amount Rs.
Unspent Balance from last year. Govt. grant-in-aid during the year	46,143.66 2,10,000.00		Staff Salaries & Med. Allowance etc. Delhi Office Calcutta Office	21,513.80 33,231.94	54,745.74
		2,56,143.66	P. F. Contribution (Delhi Office) Calcutta Office	656.00 1,874.00	2,530.00
			L. T. C. & Children Educational allowance (Delhi and I. J. H.S.) Calcutta Office		280.00
			<i>publications.</i> I. J. H. S./Vatesvara Siddhanta Travelling Contingencies Including Printing & Stationery Postage. Advt. Cooler hire charges etc. 1500th Birth Anniversary of Aryabhata Delegation of Dr B. V. Subbarayappa.	23,096.41 3,586.30	
				10,925.09 34,040.30 5,887.00	
			Total Unspent balance	1,35,090.84 1,24,059.98	
				2,59,150.82	2,59,150.82

*Other Receipts :*

Sale of Publications  
House Rent Recovery (Staff)

2,740.26  
266.90

3,007.16

12, Bhagat Singh Marg,  
New Delhi-110001  
Dated : 13 Nov. 1977

*for LODHA & COMPANY  
Chartered Accountants  
Sd/-P. K. JAIN  
Partner*

*Sd/-S. K. DASGUPTA  
Executive Secretary.*

**RECEIPTS & PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 1978**  
**INDO-SOVIET COLLABORATION PROGRAMME**

RECEIPTS	Amount Rs.	PAYMENTS	Amount. Rs.	RECEIPTS	Amount Rs.	PAYMENTS	Amount. Rs.
Unspent Balance from last year	5,251.87			Staff Salaries & Medical Allowance	22,475.65		
Govt. grant-in-aid during the year	3,32,000.00			P. F. Contribution	1,570.00		
	<hr/>	3,37,251.87	<hr/>	L. T. C.	781.39		
					<hr/>		
				Contingencies including printing & Stationery, uniform to Class IV employees etc.	24,827.04		
					<hr/>		
				Travelling	20,105.95		
					<hr/>		
				<i>Symposium &amp; Seminars</i>	3,555.18		
				(a) Symposium on Embryology of Crop Plants	62,384.22		
				(b) International Conference of Geological Congress	1,374.00		
				(c) Visit by Indian Scientists to U. S. S. R. Dr D. N. Dhar	9,637.00		
					<hr/>		
				Total	3,37,355.57		
					<hr/>		
					73,395.22		
					<hr/>		
				<i>Visits</i>	<i>Visit of Soviet Delegates to INDIA</i>		
				(a) Dr I. M. Zhelenykh & Dr. S. P. Mikheev	2,840.00		
				(b) Dr M. O. Aliev & Dr (Mrs) L.A. Tarutina	10,361.64		
				(c) Dr I. Khamrabayev & Dr R. A. Magdiv	258.00		
					<hr/>		
				C/F	1,21,883.39		

RECEIPTS	Amount (Rs.)	PAYMENTS	Amount (Rs.)	Amount (Rs.)	
B/F	3,37,355.57	(d) Dr. V. I. Makarov (e) Dr I. B. Danilov (f) Dr Yu. I. Koptev (g) Dr V. A. Statulliqvichus & Professor. V. V. Sazanov (h) Dr (Mrs.) V. P. Ryab-Chenko (i) Dr A. I. Vengur and Others (j) Dr A. V. Tutukov (k) Dr N. M. Kisselov and V. I. Tkatchen (l) Dr V. I. Fratcheviko and others (m) Dr Juri V. Teslenko (n) Dr I. P. Krylov & Dr A. D. Nikulin (o) Dr B. S. Volvousky (p) Dr K. Yu Zubin & Dr O. S. Belyakov (q) Dr A. Ismailov	3,252.00 3,440.00 4,863.70 8,480.00 10,877.00 16,665.00 4,779.80 6,474.00 9,325.00 8,478.50 8,990.00 1,840.00 2,000.00 6,000.00	3,252.00 3,440.00 4,863.70 8,480.00 10,877.00 16,665.00 4,779.80 6,474.00 9,325.00 8,478.50 8,990.00 1,840.00 2,000.00 6,000.00	1,21,883.39 1,06,547.54 1,08,924.64 2,30,808.03 3,37,355.57
Total	3,37,355.57				
		Unspent Balance			
		Total		3,37,355.57	

II, Bhagat Singh Marg,  
New Delhi-110001.  
Dated : 13 Nov. 1978

for LODHA & CO.  
Chartered Accountants  
Sd./- P. K. JAIN  
Partner

Sd./- S. K. DASGUPTA  
Executive Secretary

**RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 1978**

**EXCHANGE OF SCIENTISTS**

RECEIPTS	Amount Rs	PAYMENTS	Amount Rs
Unspent Balance from last year	11,598.58	Staff Salaries & Medical Allowance	8,984.25
		P. F. Contribution.	368.00
Govt. grant-in-aid during the year	<u>1,90,000.00</u>		<u>9,352.25</u>
			3,211.65
			4,077.47
		Travelling	
		Contingencies	
			1,580.00
			1,580.00
			* 44,250.97

*Other Receipts*

*Inter-Academy Exchange of Visits :*

*(I) Visits of Indian Scientists*

- (a) Dr Virendra Kumar 2,287.56
- (b) Dr M. A. Qayyum 12,065.00
- (c) Dr T. V. Desikachary 13,094.00
- (d) Dr C. N. R. Rao 4,171.41
- (e) Prof. (Mrs.) Monisha Bose 12,633.00

*(II) Visits of Foreign Scientists to India.*

- (a) Dr J. B. Richardson 275.00
- (b) Dr & Madam B. Pullman 4,768.48
- (c) Dr J. E. Jayne 10,865.00
- (d) Dr J. B. Richardson 3,621.50

RECEIPTS	Amount Rs	PAYMENTS	Amount Rs	Amount Rs
(e) Dr J. Brooks		2,580.00		
(f) Dr A. W. Woltendale		1,497.00		
(g) Dr D. N. Raine & Dr Nina Carson		7,774.00		
(h) Prof. C. G. Wynne		1,260.00		
(i) Prof. J. M. Hirst		5,374.00		
(j) Prof. F. G. Smith		1,260.00		
(k) Mrs. J. E. Beesag		9,520.00		
(l) Prof. R. H. Pain		3,405.00		
(m) Dr J. S. Anderson		4,675.00		
(n) Prof. (Mrs) M. G. P. Stoker		1,760.00		
			58,634.98	
(III) <i>J. S. P. S. Programme</i>				
				<i>Visits of Indian Scientists to Japan</i>
(a) Dr Krishan Lal				11,815.00
(b) Dr Raghuvir Singh				11,815.00
(c) Dr G. P. Sharma				11,815.00
(d) Prof. R. S. Mishra				12,067.00
(e) Dr A. R. Verma				480.00
				47,992.00

RECEIPTS	Amount Rs.	PAYMENTS	Amount Rs.	Amount Rs.
		(IV) <i>Visit of Japanese Scientists to India.</i>		
		(a) Prof. Y. Asada	9,363.90	
		(b) Dr Shoichi Tanaka	8,550.00	
		(c) Dr Kiyoshi Takahashi	<u>8,221.50</u>	26,135.40
		<i>INSA-Srilanka Programme</i>		
		Dr R. Ramanna	1,957.00	
		Subscription to I. F. S.	<u>894.65</u>	
				1,96,506.37
				<u>6,672.21</u>
		Unspent Balance		
		Total	<u>2,03,178.58</u>	<u>2,03,178.58</u>

for LODHA & CO.  
*Chartered Accountants*  
 Sd./- P. K. JAIN  
*Partner*  
 12, Bhagat Singh Marg,  
 New Delhi-110 001.  
 Dated: 13th Nov. 1978

Sd./- S. K. DASGUPTA  
*Executive Secretary*

**RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 1978**  
**NON-RECURRING EXPENDITURE (INCLUDING LIBRARY)**

RECEIPTS	Amount Rs	PAYMENTS	Amount Rs	Amount Rs
Unspent balance from last year	19,844.50	Library Books Library Books, (History of Science)	42,956.97	
Govt. grant-in-aid during the year.	<u>2,10,000.00</u>		<u>780.00</u>	
	<u>2,29,844.50</u>			<u>43,736.97</u>
		<i>Furniture Fixture &amp; Equipments</i>		
		Additions & Alteration of INSA building.	21,252.54	
		Air Conditioner.	44,826.34	
		Furniture & Fixtures	<u>37,407.45</u>	
		Purchase & Subscription to Journal		
		<i>Delegations (Non- ICSU)</i>		
		(a) Dr A. K. Sarbhoy	6,910.50	
		(b) Dr R. Maheshwari	9,414.00	
		(c) Dr N. Samajpati	9,233.00	
		(d) Prof. R. C. Paul	15,541.70	
		(e) Dr Kalyana Sundaram	<u>2,334.00</u>	
				<u>43,433.20</u>
				<u>2,25,505.69</u>
				<u>4,338.81</u>
				<u>Total</u> <u>2,29,844.50</u>
		<i>Unspent Balance</i>		
		<u>for LODHA &amp; CO.</u> <i>Chartered Accountants</i>		
		Sd./-P. K. JAIN <i>Partner</i>		

Sd./-S. K. DASGUPTA  
*Executive Secretary*

for LODHA & CO.  
*Chartered Accountants*

12, Bhagat Singh Marg,  
New Delhi-110 001.  
Dated : 13 Nov. 1978

**RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 1978**

		<b>GENERAL FUND</b>	
<b>RECEIPTS</b>	<b>Amount Rs</b>	<b>PAYMENTS</b>	<b>Amount Rs</b>
FELLOWSHIP SUBSCRIPTION			
Amount received	4,545.65	Fellowship Subscription W/off	96.00
Amount receivable	<u>1,718.35</u>	Bank Charges	235.53
		Deficit of Science Policy Unit	<u>3,512.64</u>
Interest in Investments	6,264.00		
Misc. Receipts			
Difference from Trial			
Balance (Sundry Receipts)			
		Total	<u>45,320.40</u>

*for LODHA & CO.,*  
*Chartered Accountants*  
*Sd/- P. K. JAIN*  
*Executive Secretary*  
*Partner*

12, Bhagat Singh Marg,  
 New Delhi-110 001  
 Dated : 13 Nov. 1978

*Sd/- S. K. DASGUPTA*  
*Executive Secretary*

SCHEDULE 'A'

**Schedule Forming Part of Balance Sheet as on 31st March, 1978**

	<i>Amount (Rs)</i>	<i>Amount (Rs)</i>
<b><i>General Fund</i></b>		
Balance as per last balance sheet	14,52,956.51	
<i>Add:</i> Transferred from Income & Expenditure Account		
<i>Add:</i> Excess of Receipt & Payment Account of General Fund	44,988.87	
	<hr/>	<hr/>
	<b>14,97,945.38</b>	
<b><i>Chandra Kala Hora Memorial Lectureship Fund</i></b>		
As per last balance sheet	2,686.71	
<i>Add:</i> Interest	<hr/>	<hr/>
	<b>2,686.71</b>	<b>2,686.71</b>
<b><i>Dr B. C. Guha Memorial Lectureship Endowment Fund</i></b>		
As per last balance sheet	15,837.06	
<i>Add:</i> Interest	<hr/>	<hr/>
	<b>1,154.30</b>	<b>16,991.36</b>
<b><i>Dr S. S. Bhatnagar Memorial Fund</i></b>		
As per last balance sheet	9,045.32	
<i>Add:</i> Interest	<hr/>	<hr/>
	<b>9,045.32</b>	<b>9,045.32</b>
<b><i>Silver Jubilee Commemoration Medal Fund</i></b>		
As per last balance sheet	1,819.20	
<i>Add:</i> Interest	<hr/>	<hr/>
	<b>384.00</b>	<b>2,203.20</b>
<b><i>Medal Fund</i></b>		
As per last balance sheet	15,497.37	
<i>Less:</i> Cost of Medal of D. N. Wadia and J. C. Ghosh	<hr/>	<hr/>
	<b>608.90</b>	<b>14,888.47</b>
<b><i>Popularisation of Science Fund</i></b>		
As per last balance sheet	8,339.89	
<i>Add:</i> Interest	<hr/>	<hr/>
	<b>590.10</b>	<b>8,929.99</b>

*Dr B. N. Chopra Memorial Lectureship Fund*

As per last balance sheet

Add: Interest

13,063.61
1,032.50
<hr/>

14,096.11
1,500.00
<hr/>

12,596.11

*Less: Cash Prize to Dr B. K. Bachhawat**Shree Dhanwantari Prize Medal Fund*

As per last balance sheet

Add: Interest

18,789.82
1,330.63
<hr/>

20,120.45
-----------

*Building Fund*

As per last balance sheet

*Prof. T. R. Seshadri 70th Birthday Medal Fund*

As per last balance sheet

Add: Interest

11,376.39
1,000.00
<hr/>

12,376.39
-----------

*Sundry Donations*

As per last balance sheet

*Vishwakarma Medal Fund*

As per last balance sheet

33,000.00
-----------

16,67,684.41
<hr/>

*for LODHA & CO.  
Chartered Accountants  
Sd./- P. K. JAIN  
Executive Secretary  
Partner*

12, Bhagat Singh Marg,  
New Delhi-110 001.  
Dated : 13 Nov. 1978

**SCHEDULE 'B'**

**Schedule of Capitalised Expenditure Forming Part of the Balance Sheet as on 31st March, 1978**

	<i>Amount (Rs)</i>	<i>Amount (Rs)</i>
<i>History of Science in India</i>		
As per last balance sheet	1,44,093.70	1,44,093.70
<i>IUPAC</i>		
As per last balance sheet	63,536.87	
<i>Science Policy Unit</i>		
As per last balance sheet	2,702.97	
<i>Indo-Soviet Collaboration</i>		
As per last balance sheet	26,235.85	
<i>International Biological Programme</i>		
As per last balance sheet	7,760.19	
<i>Scientific Research &amp; Research Training</i>		
As per last balance sheet	4,98,776.53	
<i>INSA-Royal Society Conference</i>		
As per last balance sheet	11,519.56	
<i>Slide Library</i>		
As per last balance sheet	9,673.23	
<i>Travel Fellowship</i>		
As per last balance sheet	4,899.40	

<i>Popularisation of Science</i>	14,641.70
As per last balance sheet	1,226.50
<i>National Committee ICSU</i>	
As per last balance sheet	
<i>Non-Recurring Expenditure</i>	
As per last balance sheet	
<i>Add:</i> Expenditure during the year	

3,71,879.73	5,53,952.22
1,82,072.49	
	13,39,018.72

*for LODHA & CO.,*  
*Chartered Accountants*  
 Sd./- P. K. JAIN  
*Executive Secretary*  
*Partner*

12, Bhagat Singh Marg.  
 New Delhi-110 001.  
 Dated : 13 Nov. 1978

**SCHEDULE 'C'**

**Schedule of Liabilities Forming Part of Balance Sheet as on 31st March, 1978**

	Amount Rs.
Sundry Amount payable	
Deposit for Library Membership	6,242.70
Security from Book Binders	1,810.00
Advance subscription Received	610.00
Earnest Money from Contractors	84.00
<i>D. A. Payable to Staff</i>	
Basic Science	53.05
Main Office	342.45
<i>Main Office-Postage advance</i>	395.50
21st I. G. C.	50.10
Total	2,190.57
	<b>12,055.27</b>

12, Bhagat Singh, Marg  
New Delhi-110 001.  
Dated : 13 Nov. 1978

for LODHA & Co.  
Chartered Accountants  
Sd./- P. K. JAIN  
Partner

Sd./- S. K. DASGUPTA  
*Executive Secretary*

SCHEDULE 'D'

Schedule of Building and Equipment Forming Part of Balance Sheet as on 31st March, 1978

	Amount Rs.	Amount Rs.
<i>Old Block</i>		
As per last Balance Sheet	4,24,273.71	4,45,526.25
Add : During the year.	<u>21,252.54</u>	
<i>New Block</i>		4,66,051.03
As per last Balance Sheet		24,112.78
<i>Car Parking and other works.</i>		
As per last balance sheet		73,952.08
<i>Non-Recurring Expenditure</i>		
As per last Balance Sheet		
Add : During the year including air conditioning charges.	<u>82,233.79</u>	1,56,185.87
<i>Furnishings :</i>		88,647.06
As per last Balance Sheet		<u>11,80,522.99</u>
Total		

12, Bhagat Singh Marg,  
New Delhi-110 001.  
Dated : 13 Nov. 1978

for LODHA & CO.  
Chartered Accountants  
Sd/-P. K. JAIN  
Partner

Sd./-S. K. DASGUPTA  
Executive Secretary

**SCHEDULE 'E'**

**Schedule of Furnitures Fixtures & Equipments and Other Capital Expenditure  
Forming Part of Balance Sheet as on 31st March, 1978**

	Amount Rs.
<i>Scientific Research and Research Training in Basic Sciences</i>	
<i>Office furniture and equipment</i>	
As per last Balance Sheet	52,588.45
<i>Project Leader's</i>	
Capital Expenditure as per last Balance Sheet	4,41,188.08
Total	<hr/> 4,93,776.53 <hr/>

*for LODHA & CO.  
Chartered Accountants*

*Sd./-S. K. DASGUPTA  
Partner*

12, Bhagat Singh Marg,  
New Delhi-110 001.  
Dated : 13 Nov. 1978

*Sd./-S. K. DASGUPTA  
Executive Secretary*

## SCHEDULE 'F'

### Schedule of Furniture and Equipments Forming Part of Balance Sheet as on 31st March, 1978

<i>Office :</i>	77,360.35
As per last Balance Sheet	
<i>Library :</i>	67,188.55
As per last Balance Sheet	
<i>Slide Library :</i>	9,673.23
As per last Balance Sheet	
<i>History of Science :</i>	66,350.56
As per last Balance Sheet	
<i>National Committee ICSU :</i>	1,226.50
As per last Balance Sheet	
<i>International Biological Programme :</i>	7,760.19
As per last Balance Sheet	
<i>Indo Soviet Collaboration :</i>	17,043.09
As per last Balance Sheet	
<i>Science Blicy Unit :</i>	2,702.97
As per last Balance Sheet	
<i>INSA Royal Society Conference :</i>	11,519.56
As per last Balance Sheet	
<i>Travel Fellowship :</i>	4,899.40
As per last Balance Sheet	

*Popularisation of Science :*  
As per last Balance Sheet

*IUPAC Furniture :*  
As per last Balance Sheet

*IUPAC Symposium :*  
As per last Balance Sheet

14,641.70
7,766.10
<hr/>
43,537.39
<hr/>
Total                    3,31,669.59

for LODHA & CO.  
*Chartered Accountants*  
Sd./- P. K. JAIN  
Partner  
12, Bhagat Singh Marg,  
New Delhi-110 001.  
Dated : 13 Nov. 1978

Sd./- S. K. DASGUPTA  
*Executive Secretary*

## SCHEDULE 'G'

### Schedule of Books & Journals Forming Part of Balance Sheet as on 31st March, 1978

	Amount Rs.	Amount Rs.
<i>Books :</i>		
As per last Balance Sheet	10,45,541.03	
Additions during the year	<u>42,956.97</u>	
		10,88,498.00
<i>History of Sciences :</i>		
As per last Balance Sheet	72,743.14	
Additions during the year	<u>780.00</u>	
		73,523.14
<i>Journals :</i>		
As per last Balance Sheet	8,42,903.79	
Additions during the year	<u>34,849.19</u>	
		<u>8,77,752.98</u>
Total :		20,39,774.12
		<u>                  </u>

for LODHA & CO.  
*Chartered Accountants*  
 Sd/- P. K. JAIN  
*Executive Secretary*  
 Partner

12, Bhagat Singh Marg,  
 New Delhi-110001  
 Dated : 13 Nov. 1978

**SCHEDULE 'H'**

**Schedule of Investments and Forming Part of Balance Sheet as on 31st March, 1978**

3% conversion 1946 face value 29,600.00 (including securities of the face value of Rs. 3,000.00 for Chandra Kala Hora Medal Endowment Fund and Funding Account)	30,189.24
Kala Hora Medal	3,63,462.00
Fixed Deposit	<u>3,63,462.00</u>
Fixed Deposits with S. B. I. Employees Provident Fund	70,865.00
General Fund	30,000.00
Additions during the year	<u>64,834.00</u>
Against Funding Account	7,786.00
Dr. S. S. Bharnagar Memorial Fund	3,840.00
Silver Jubilee Commemoration Medal Fund	5,901.00
Popularisation of Science Fund	11,543.00
Dr. B. C. Guha Memorial Fund	10,325.00
Dr. B. N. Chopra Memorial Lectureship Fund	16,000.00
Dhanwantari Prize Fund	10,000.00
Prof. T. R. Seshadri 70th Birthday Medal Fund	33,000.00
Viswakarma Medal Fund	<u>6,57,745.24</u>
Total	<u>6,57,745.24</u>

*for LODHA & CO.,*  
*Chartered Accountants*  
*Sd/- P. K. JAIN*  
*Partner*  
  
*12, Bhagat Singh Marg,*  
*New Delhi-110001.*  
*Dated: 13 Nov. 1978*

*Sd/- S. K. DASGUPTA*  
*Executive Secretary*

## SCHEDULE 'I'

### Schedule of Cash and Bank Balance Forming Part of the Balance Sheet as on 31st March, 1978

	Amount Rs.	
Cash and other balance (Petty Cash)		
<i>Postage Advance</i>		
Franking Machine Publication	9,090.70	
Franking Machine M/Office	3,385.75	—
Postage Calcutta Office	488.65	
Postage Library	27.50	
Postage Publication	490.30	—
Postage Main Office	74.65	
Postage National Commission		
<i>Imprest Account</i>		
Calcutta Office	255.12	
Indian Journal of History of Science	361.05	
<i>Savings Account with State Bank of India</i>		
Funding Account (C & I-9)	80,456.42	
Employees Provident Fund (C & I-10)	39,378.32	

*Savings account with Syndicate Bank*  
 Savings bank account with Syndicate Bank (No. 4312)

*Current Account with State Bank of India*

State Bank of India, I. P. Estate (No. 3300031)	2,82,876.03
State Bank of India Park Street Calcutta	956.36
State Bank of India Park Street Calcutta (IJHS)	15,237.26

*Current Account with Syndicate Bank*

Syndicate Bank, I. P. Estate No. 132	Total
--------------------------------------	-------

57,414.21	
4,96,699.43	

for LODHA & CO.,  
*Chartered Accountants*  
 Sd./-S. K. DASGUPTA  
*Executive Secretary*  
 12, Bhagat Singh Marg,  
 New Delhi-110 001.  
 Dated : 13 Nov. 1978

## SCHEDULE 'J'

### Schedule of Advances and Account receivable Forming Part of Balance Sheet as on 31st March, 1978

	Amount Rs.	Amount Rs.	Amount Rs.
<b>Advance :</b>			
1. <i>Normal Activities</i>			
i) Prof. R. C. Sinha, Patna Symposium. Recent Researches & applications of Geochemistry Feb. 20-26, 1973 at Patna.	5000.00		
ii) Dr. S. K. Sinha, Symposium Photosynthesis and Productivity on Feb., 1978.	4000.00		
	171.10		
<i>Local Chapter</i>			
Dr P. S. Rao	500.00		
Dr D. D. Pant, Allahabad	244.88		
Dr N. K. Panikkar, Trivandrum	500.00		
Dr B. G. Desh Panday, Poona	500.00		
Dr N. A. Ramaiah, Kanpur	7.50		
Dr G. S. Ramaswamy, Madras	500.00		
Dr J. N. Kapoor, Kanpur	295.00		
Dr C. N. R. Rao	343.91		
Prof. S. K. Trehan	36.25		
Dr R. N. Chakravarty	3,098.64		

	Amount Rs.	Amount Rs.
<i>Regional Units (Prof. S. K. Trehan)</i>		500.00
<i>Summer School on Fishery Biology</i>		5,000.00
<i>Amount of Sundry Advances to staff &amp; Others</i>		
Dr. P. N. Ganpati Waltiar	300.00	
Dr V. V. L. Rao	50.00	
Dr S. Murthy (H. S.)	50.00	
Banaras Hindu University	500.00	
Dr V. Gopala Rao, Hyderabad (H. S.)	150.00	
Dr K. A. Chowdhary, Aligarh (H. S.)	50.00	
Dr C. Dwarka Nath (H. S.)	50.00	
—do— 8.7.71. (H.S.)	200.00	
Madras University (H.S.)	0.30	
Oriental Research Institute, Mysore	320.00	
Shri Janak Raj	15.00	
Shri K. B. Lal	18.00	
M/S Indra Art Service	200.00	
Postage Advance	1000.00	
Shri Shish Pal	150.00	
Shri S. K. Sandhar	50.00	
—do—	100.00	
		3,203.30
<i>Less (Sita Ram)</i>		14.00
		3,189.30

<i>Advances to staff:</i>	
Festival	1140.00
Conveyance	4250.00
L. T. C.	2310.00
Postage A/c Bombay	200.00
	<hr/>

2. <i>ICSU</i>	
<i>Secretarial Assistance</i>	48.40
Dr B. K. Bachhawat	500.00
Dr B. B. Singh	500.00
Dr Jagdev Singh	500.00
Dr B. M. Reddy	500.00
Dr S. Krishnaswamy	500.00
Dr C. Ramasastri	250.00
Dr A. R. Gopala-Ayanger	300.00
Dr S. D. Nigam	250.00
Dr A. Srinivasan	500.00
Dr Miss A. R. Irawathy	749.50
Advances to Prof. Sarbhoy	6,500.00
Advances to Prof. B. I. Sundararaj	362.97
Advances for Symposia	<hr/>
Magnetic Resonance	7,612.47
<i>Conference on Integrated Mathematics</i>	3,848.40
Advances to Prof. P. L. Bhatnagar	<hr/>
Advances to Prof. M. K. Singhal	39.000.00
	<hr/>
	34,000.00
	5,000.00
	<hr/>
	39.000.00
	50,460.86

	Amount Rs.	Amount Rs.
<b>3. History of Science</b>		
Dr K. V. Sharma (Work relating to Cartage Exp.)	1781.94	
Dr S. K. Sandhar	50.00	
Shri Sayeed Zial Hussain (TA/DA)	250.00	
Dr K. A. Choudhary	100.00	
Dr. D. D. Joshi	50.00	
Bhandarkar Oriental Res. Instt. Transcription	165.00	
Oriental Research Institute Transcription	896.00	
Dr C. Dwarka Nath TA/DA	100.00	
Oriental Research Institute	84.00	
	3,476.94	
Advances to Dr S. N. Sen	200.00	
Advances to R. Fellow	88.99	
Advances to Dr C. T. Rajagopal	750.00	
	4,515.93	
<b>4. Basic Sciences</b>		
Advances to Project Leaders (As per List attached)	48,978.98	
Advances to Research Fellow	190.15	
	49,169.13	

5. *Popularisation of Sciences*

Dr B. G. Desh Pandey, Poona  
 Dr D. D. Pant, Allahabad  
 Prof. U. A. Swathanurayana  
 Prof. P. B. Sukhame, Poona

Registration fee for Motor-cycle

1000.00	
1000.00	
500.00	
1000.00	
-----	3,500.00
	500.00
	-----
	1,36,833.89
	-----
Total	

for LODHA & CO.

*Chartered Accountants*

Sd./ - P. K. JAIN  
*Partner*  
 12, Bhagat Singh Marg,  
 New Delhi-110001  
 Dated: 13 Nov. 1978

Sd./ S. K. DASGUPTA  
*Executive Secretary*

**SCHEDULE 'K'**

**SCHEDULE FORMING PART OF INCOME AND EXPENDITURE ACCOUNT  
FOR THE YEAR ENDED 31ST MARCH, 1978**

Schemes	Govt. Grant received			Total available	Expenditure incurred	Unspent Overspent
	Unspent Balance as on 1.4.77	Govt. grant received during 77-78	Other Receipts			
1	2	3	4	5	6	7
<b>1. NON-PLAN :</b>						
(i) Normal Activities	72,262.01	12,50,000.00	1,19,303.18	15,26,120.65	14,81,985.19	44,135.46
Workshop on Water in Man's Life		23,072.51				
IUPAC Symposium		47,473.86				
International Biological Programme		14,009.09				
(ii) (a) ICSU Activities	51,103.80					
(b) Subscription to ICSU Unions	3,26,229.00	7,29,318.75	12,463.55	11,19,115.10	11,44,416.56 (-) 25,301.46	
(iii) Summer Schools	13,409.98	48,000.00	51,310.24	1,12,720.22	96,123.12	16,587.10
(iv) Award for Young Scientists	—	25,000.00	—	25,000.00	31,324.84 (-) 6,324.84	
(v) Documentation & Publications (Plan)	—	10,000.00	—	10,000.00	6,479.54	3,520.46

2. PLAN :						
(i) Scientific Research and Research Training	2,73,204.83	10,50,000.00	86,580.00	14,09,784.83	12,49,103.14	1,60,681.69
(ii) Compilation of History of Sciences in India	46,143.66	2,10,000.00	3,007.16	2,59,150.82	1,35,090.84	1,24,059.98
(iii) Indo-Soviet Collaboration	5,251.87	3,32,000.00	103.70	3,37,355.57	2,30,808.03	1,06,547.54
(iv) Exchange of Scientist	11,598.58	1,90,000.00	1,580.00	2,03,178.58	1,96,506.37	6,672.21
(v) Popularisation of Science	20,231.67	—	—	20,231.67	8,158.85	12,072.82
(vi) Non-Recurring	19,844.50	2,10,000.00	—	2,29,844.50	2,25,505.69	4,338.81
Total	9,23,835.36	40,54,318.75	2,74,347.83	52,52,501.94	48,05,502.17	4,46,999.77

Total Unspent Balance	4,46,999.77
Less advances as per Schedule J	1,36,833.89
Net unspent balance available	3,10,165.88

for LODHA & CO.  
*Chartered Accountants*  
 Sd/- P. K. JAIN  
*Executive Secretary*  
 Partner

12, Bhagat Singh Marg,  
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 Dated: 13 Nov. 1978

Sd/- S. K. DASGUPTA  
*Executive Secretary*





